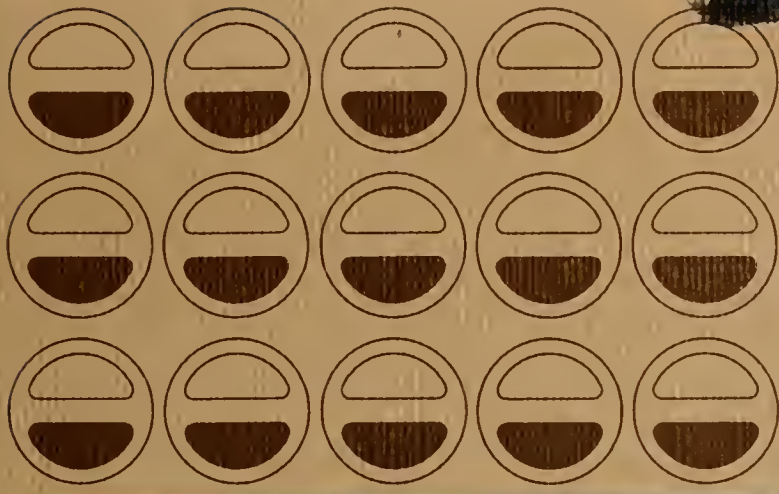
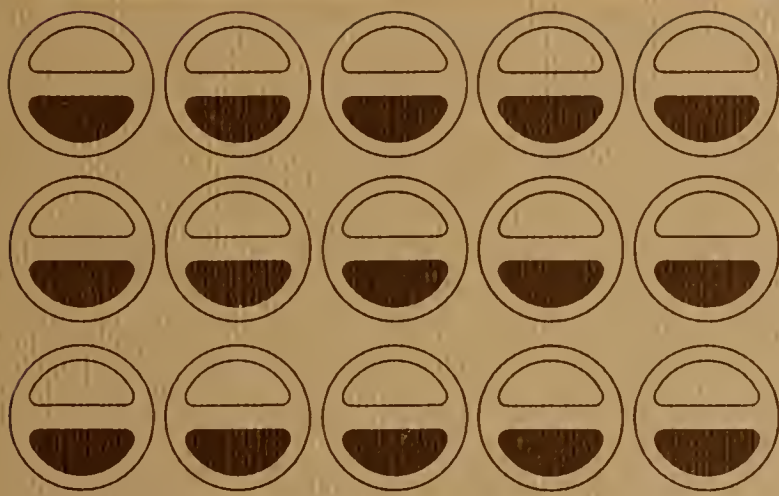


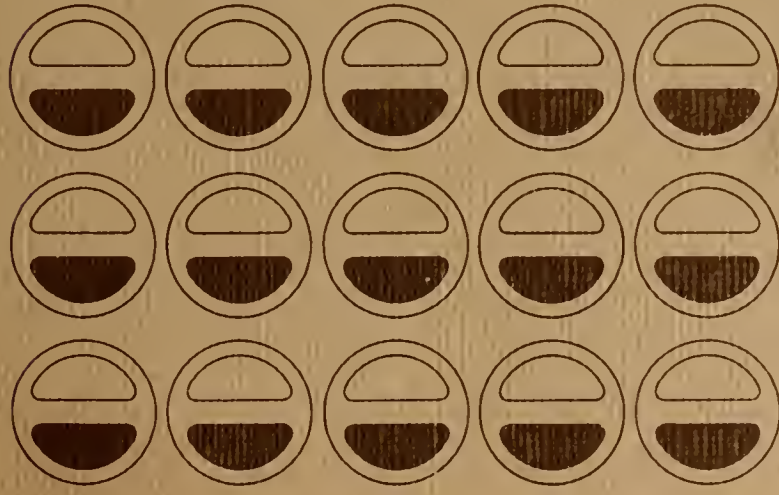
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PARTICULATE AND SO₂ EMISSION
INVENTORY FOR NON-AQMA
COUNTIES IN MONTANA



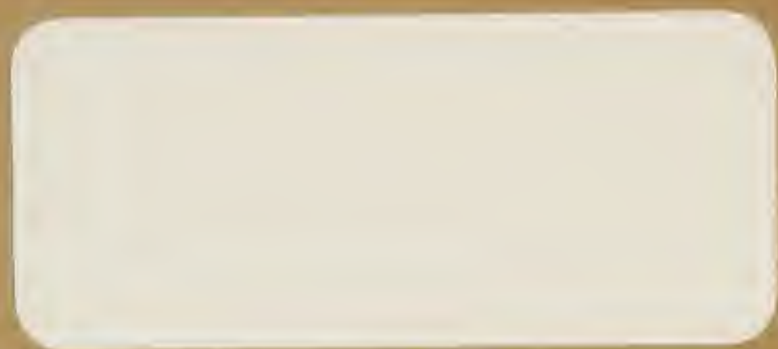
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PARTICULATE AND SO₂ EMISSION
INVENTORY FOR NON-AQMA
COUNTIES IN MONTANA

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Contract No. 0630

Prepared for
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1.0 SUMMARY

This report presents a 1974 base year air pollutant emission inventory of area sources in the State of Montana. The report was prepared under contract to the Montana Department of Health and Environmental Sciences for the Air Quality Bureau (AQB). It is anticipated that the data presented herein will be used by the AQB as a data base for several ongoing projects and projects planned for the near future.

A base year of 1974 was specified for the inventory so that it would be consistent with the time frame of the Montana AQMA Area Source Emission Inventory.¹ As another consideration, it should be noted that 1974 is the most recent year for which data can be obtained for an entire year for several of the source categories described in this report. Also, year to year variations in the data used to calculate emissions for most area source categories are quite small. Therefore, the data presented here for 1974 should be applicable for 1975.

Area sources were divided into four major categories: fuel combustion, open burning, mobile sources, and fugitive dust. The specific area source categories included in this inventory are shown in the Contents. Annual emissions from these categories were calculated for two pollutants: suspended particulate and sulfur dioxide (SO₂). Annual particulate emission estimates were calculated for all categories. The SO₂ emission estimates were only calculated for the fuel combustion and mobile source categories.

The basic methodologies used in this report are consistent with those presented in the recent AQMA area source inventory of 17 counties in Montana¹. Consequently, only abbreviated descriptions of the methodologies used are presented for each source category. A more detailed description of each method can be found in Reference 1. Data are presented in tabular form by county for each source category at the end of the report. The 56 counties are arranged in alphabetical order rather than by region. As most reference material used presented data in alphabetical order by county, data retrieval and manipulation was facilitated by following the same order.

Wherever data more recent than that used in Reference 1 became available, the latest data were used in calculating annual emission estimates. In the few instances where newer data were used, emission estimates for the original 17 AQMA counties were recalculated.

Figure 1 shows the location of the 17 counties covered in the Montana AQMA Area Source Emission Inventory.

The total calculated emissions for each county are listed in Table 1. The emission estimates for each source category are presented in the tables at the end of this report.

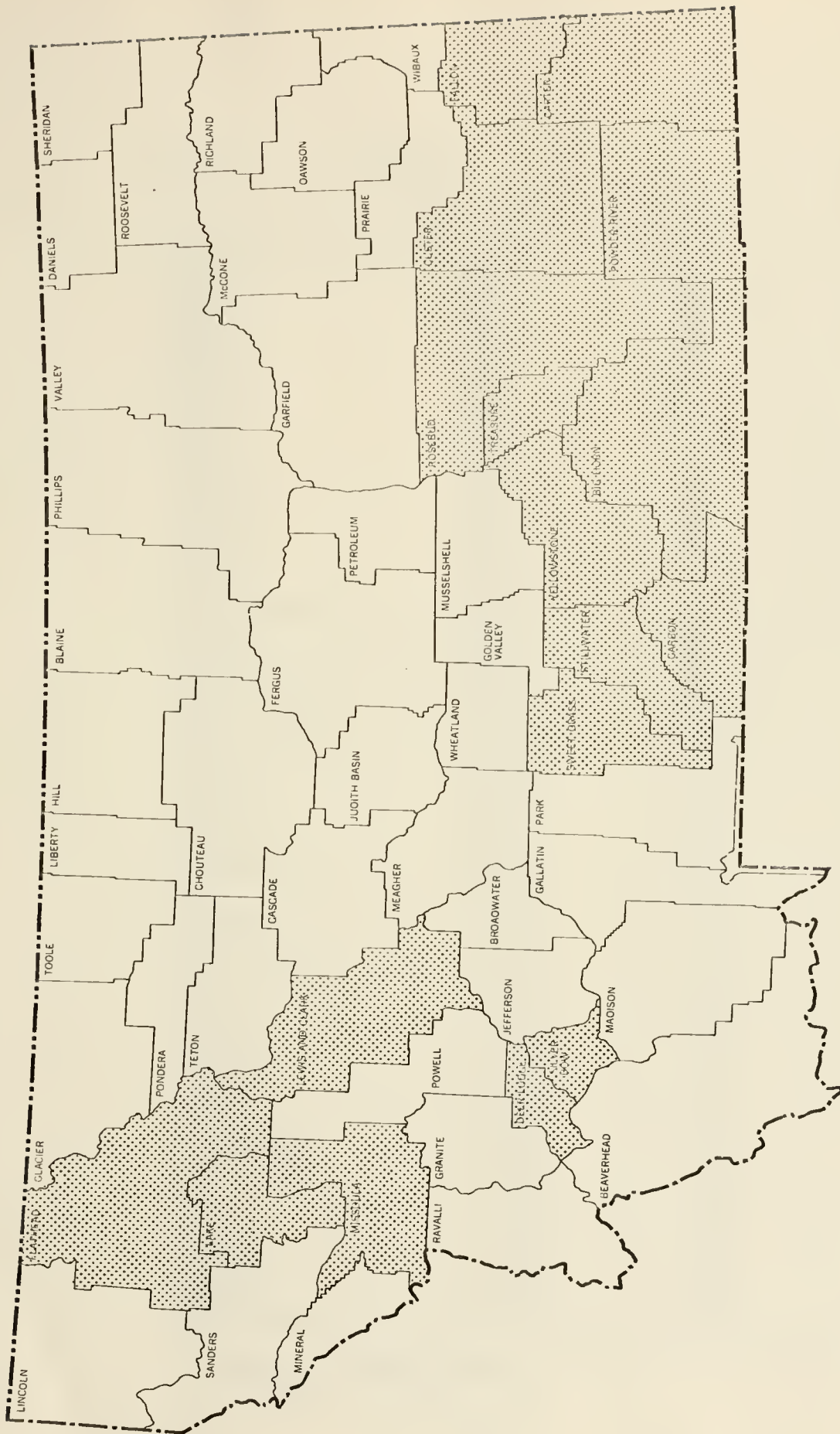


Figure 1. Shaded areas indicate the 17 counties included in the Montana AQMA Area Source Emission Inventory.

Table 1. 1974 Area Source Emissions
(ton/yr)

| County | Particulate | SO ₂ |
|----------------------------|-------------|-----------------|
| Beaverhead | 23631 | 162 |
| Bighorn ^a | 35092 | 200 |
| Blaine | 27517 | 148 |
| Broadwater | 15237 | 79 |
| Carbon ^a | 34880 | 126 |
| Carter ^a | 9288 | 41 |
| Cascade | 51529 | 1414 |
| Chouteau | 32587 | 141 |
| Custer ^a | 19834 | 245 |
| Daniels | 14819 | 61 |
| Dawson | 24463 | 198 |
| Deerlodge ^a | 13602 | 116 |
| Fallon ^a | 15642 | 60 |
| Fergus | 42225 | 239 |
| Flathead ^a | 83687 | 1842 |
| Gallatin | 81132 | 746 |
| Garfield | 7816 | 26 |
| Glacier | 22569 | 171 |
| Golden Valley | 4970 | 40 |
| Granite | 18109 | 128 |
| Hill | 26434 | 422 |
| Jefferson | 31409 | 100 |
| Judith Basin | 14452 | 66 |
| Lake ^a | 48455 | 386 |
| Lewis & Clark ^a | 66076 | 551 |
| Liberty | 4693 | 61 |
| Lincoln | 36480 | 303 |
| McCone | 13063 | 73 |
| Madison | 25800 | 119 |
| Meagher | 12800 | 98 |
| Mineral | 12874 | 116 |
| Missoula ^a | 54345 | 1860 |
| Musselshell | 17860 | 153 |
| Park | 27854 | 240 |
| Petroleum | 3222 | 15 |
| Phillips | 23466 | 123 |
| Pondera | 28574 | 95 |
| Powder River ^a | 15179 | 49 |
| Powell | 34616 | 194 |
| Prairie | 8242 | 103 |
| Ravalli | 53683 | 314 |
| Richland | 24414 | 193 |
| Roosevelt | 44290 | 190 |
| Rosebud ^a | 25753 | 231 |
| Sanders | 32687 | 380 |
| Sheridan | 27482 | 128 |
| Silverbow ^a | 19160 | 531 |
| Stillwater ^a | 21982 | 110 |
| Sweetgrass ^a | 16163 | 74 |
| Teton | 29853 | 92 |
| Toole | 27205 | 110 |
| Treasure ^a | 5053 | 44 |
| Valley | 34956 | 209 |
| Wheatland | 12990 | 55 |
| Wibaux | 20120 | 117 |
| Yellowstone ^a | 53695 | 1982 |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

2.0 FUEL COMBUSTION

2.1 BITUMINOUS COAL

Residential coal consumption was calculated using the degree-day heating method.² Using this method, fuel consumption can be calculated as a product of four factors:

- The number of dwelling units using the fuel as a heating fuel.
- The fuel heating requirement factor (amount of fuel per degree day per dwelling).
- The average annual heating degree days.
- A correction factor for the number of rooms per dwelling unit.

The number of dwelling units using coal was obtained from the 1970 Census of Housing.³ It was assumed the number of 1970 dwelling units using coal was representative of 1974. The heating requirement factor for coal is 0.0012 tons of coal per dwelling unit per heating degree day. The average annual heating degree-days were obtained from the nearest National Weather Service (NWS) reporting station.⁴ The average number of rooms per dwelling unit was determined from Reference 3.

Since the 1974 calculated residential coal consumption for the Montana counties was greater than the Bureau of Mines retail dealers' bituminous coal figure for the state,⁵ it was assumed that the commercial-institutional coal consumption area source emissions were negligible.²

It was further assumed that industrial coal users burned large enough quantities of coal to be included as point sources. Therefore, industrial coal combustion area source emissions were assumed to be negligible.

Since all of the coal consumption was assumed to be residential, emission factors for hand fired units⁶ were applied to the calculated residential coal consumption. Residential coal consumption data and the related emissions are listed in Table 2.

2.2 DISTILLATE OIL

Residential distillate oil consumption was calculated by the degree-day heating method described in section 2.1. The heating requirement factor for gallons of distillate oil burned per dwelling unit per heating degree-day is 0.18.¹ It was assumed that the number of 1970 dwelling units using distillate oil was representative of 1974.

Commercial-institutional area source distillate oil consumption was calculated by apportioning the state distillate oil commercial consumption by the ratio of county/state 1974 population.⁷ State commercial consumption for area sources was determined from 1974 published data.⁸

Industrial distillate oil consumption was calculated by apportioning state industrial distillate consumption by the ratio of county/state 1973 manufacturing employees,⁹ where the 1973 ratio was assumed to be representative of 1974. State industrial consumption was determined from 1974 published data.⁸ Point source distillate oil consumption was determined from a National Emissions Data System (NEDS) computer listing for the State of Montana.¹⁰ For each county, point source consumption was subtracted from the apportioned industrial consumption to determine the 1974 area source distillate consumption.

Emission factors for distillate fuel oil combustion were obtained from Reference 6. Distillate fuel oil consumption data and the calculated emissions are presented in Table 3.

2.3 RESIDUAL OIL

Residences do not usually consume residual oil. Therefore, it was assumed that residential area source residual oil consumption is negligible.

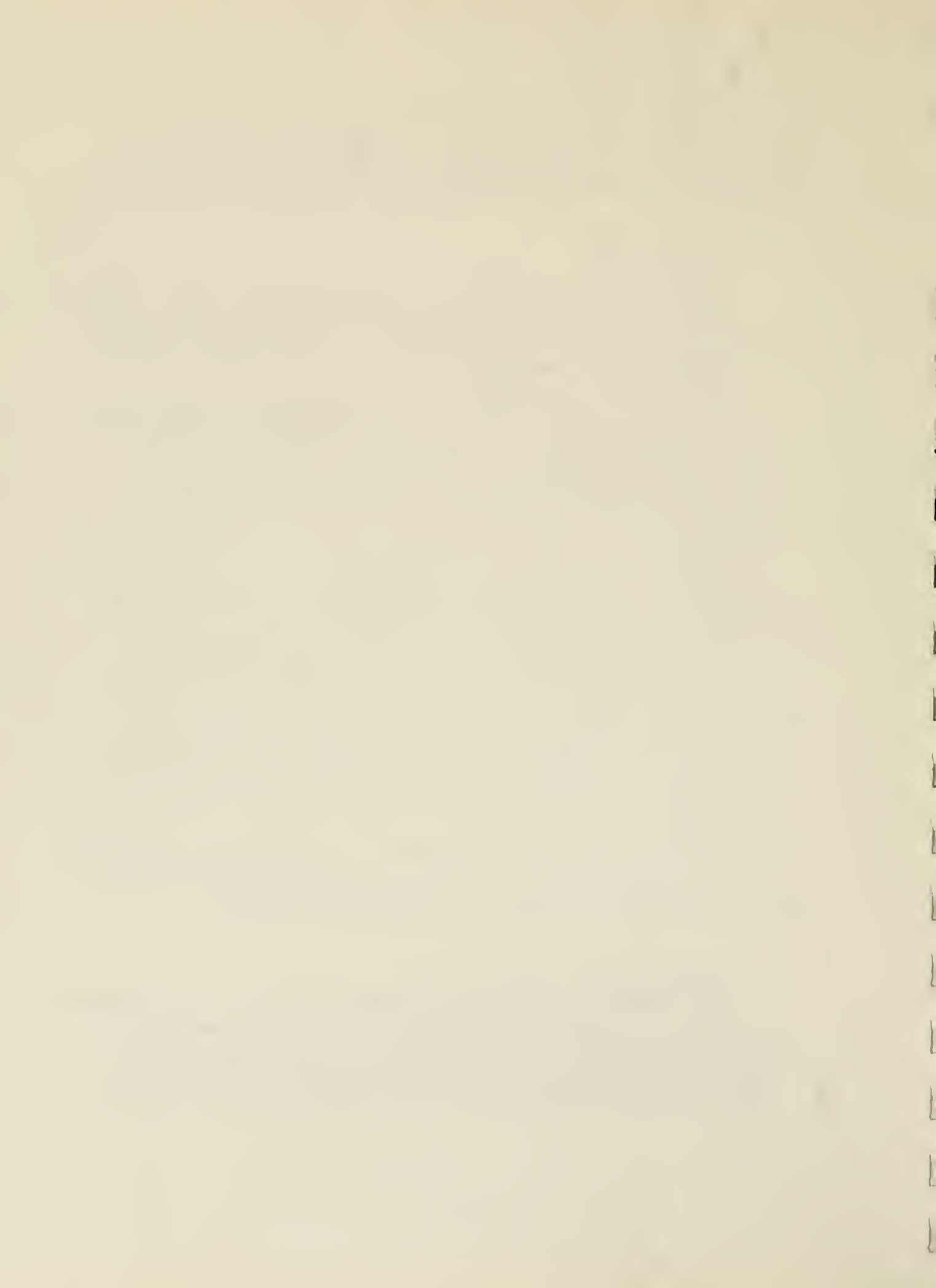
Commercial-institutional area source residual oil consumption was calculated by apportioning state commercial-institutional residual oil consumption by the ratio of county/state 1974 population.⁷ The state area source consumption of residual oil was determined from 1974 published data.⁸

Industrial residual oil consumption was calculated by apportioning state industrial residual oil consumption by the ratio of county/state 1973 manufacturing employees,⁹ where the 1973 ratio was assumed to be representative of 1974. State industrial consumption was determined from a NEDS computer listing.¹⁰ For each county, point source consumption was subtracted from the apportioned industrial consumption to determine the 1974 area source residual oil consumption.

Emission factors for residual oil combustion were obtained from Reference 6. Residual oil consumption data and the calculated emissions are presented in Table 4.

2.4 NATURAL GAS

The consumption of natural gas in Montana was determined from gas delivery data provided by the natural gas distributors in the State^{11,12} and from 1973 published data¹³ where 1973 data was assumed to be representative of 1974.



The 1974 point source consumption for each county was determined from data provided by the natural gas distributors and from a NEDS computer listing.¹⁰ Area source natural gas consumption was calculated by subtracting 1974 point source consumption totals from the total natural gas deliveries for each county.

Emission factors for natural gas combustion were obtained from Reference 6. Natural gas consumption data and the calculated emissions are listed in Table 5.

2.5 OTHER FUELS

There were two types of fuels considered in the area source category: wood and LPG.

Wood

Residential wood consumption was calculated using the degree-day heating method² previously described in section 2.1. The heating requirement factor used for wood consumption is 0.0017 tons of wood per dwelling unit per heating degree-day.² It was assumed that the number of 1970 dwelling units using wood³ was representative of 1974.

There were no data available to indicate the use of wood fuel by commercial-institutional area sources. Wood burning by industrial sources is generally concentrated in the wood products industry and these industries are included as point sources. Therefore, commercial-institutional and industrial area source wood consumption were considered to be negligible.

LPG

Residential LPG consumption was calculated by apportioning the estimated state 1974 LPG consumption^{1,14} by the ratio of county/state 1970 dwelling units using LPG.³ It was assumed that this ratio is representative of 1974.

Commercial-institutional LPG consumption was calculated by apportioning the state commercial 1974 LPG consumption¹⁴ by the ratio of county/state 1974 population.⁷

Industrial LPG consumption was calculated by apportioning 1974 state industrial LPG consumption¹⁴ by the ratio of county/state 1973 manufacturing employees.⁹ This ratio was assumed to be representative of 1974.

Emission factors for wood and LPG combustion were obtained from Reference 6. Wood consumption and calculated wood combustion emissions are presented in Table 6. LPG consumption and calculated LPG combustion emissions are listed in Table 7.

3.0 OPEN BURNING

There are three classifications of open burning which have been considered to estimate emissions: agricultural burning, prescribed burning, and forest wildfires.

3.1 AGRICULTURAL BURNING

The number of acres of fields and ditches burned in 1974 was calculated as a percentage of the planted acres of wheat, barley, and oats in each county. It was assumed that the equivalent of two percent of these planted acres would represent a reasonable estimate of the total acres of agricultural burning.¹⁵

3.2 PRESCRIBED BURNING

The number of acres of prescribed burning in each national forest was apportioned to each county by the number of acres of national forest in the county.¹⁶ The acres of prescribed burning in each national forest was determined from data provided by the U.S. Forest Service.¹⁷

Based on information obtained from the Montana Division of Forestry,¹⁸ it was assumed that for each county the number of acres of prescribed burning in the forest land outside the U.S. Forest Service protection boundaries was 55 percent of that burned within the protection boundaries.

3.3 FOREST FIRES

The U.S. Forest Service provided information on the number of acres of forest consumed by forest fires in 1974 for each national forest in Montana.¹⁹ The acres of forest

consumed by forest fires in 1974 were apportioned to each county by the number of acres in each forest.

The Montana Division of Forestry provided data on forest fires outside the Forest Service protection boundaries. The acres of forest consumed were apportioned by the number of acres of forest outside the Forest Service protection boundaries.

The estimated fuel loading for agricultural burning is assumed to be 2.5 tons per acre.² The U.S. Forest Service reports an estimated average fuel loading for forests in Montana of 140 tons per acre for land west of the Continental Divide and 110 tons per acre east of the Divide.²⁰

The emission factor for agricultural burning was obtained from Reference 6. Emission factors of 50 pounds per ton for prescribed burning and 150 pounds per ton for forest wildfires were obtained from a paper presented at the 1976 Air Pollution Control Association meeting.²¹ The acres of land burned and the calculated emissions are listed in Table 8.

4.0 MOBILE SOURCES

4.1 HIGHWAY MOBILE SOURCES

The Montana Department of Highways provided two publications containing data on miles of road and 1972 daily vehicle miles traveled (VMT) for both rural and municipal roads.^{22,23}

It was assumed that the 1972 VMT data provided were representative of 1974. The total daily VMT by county obtained from these two sources was then multiplied by 365 to obtain the annual county VMT totals.

In order to disaggregate total annual VMT into travel by light duty vehicles (LDV), light duty trucks (LDT), heavy duty gasoline powered vehicles (HDV), and heavy duty diesel powered vehicles (HDD), it was assumed that percentage of travel by vehicle type in each county was the same as the average percentages obtained for the cities of Missoula and Billings.²⁴

Emission factors for highway mobile sources were obtained from Reference 6. Annual VMT totals by vehicle type and the calculated emissions are presented in Table 9.

4.2 OFF-HIGHWAY VEHICLES

This category includes off-highway vehicles using gasoline and diesel fuels. Gasoline fuel consumption is calculated by applying fuel usage factors² to the number of gasoline powered tractors and to the population.

The number of tractors in each county in 1969 was obtained from the Census of Agriculture.²⁵ It was assumed that the number of tractors increased from 1969 to 1974 in

direct proportion to state-wide population growth. It was further assumed that 60 percent of these tractors are gasoline powered. The 1974 population⁷ is used to determine the remaining off-highway gasoline consumption.

Three fuel usage factors² are used to calculate diesel fuel consumption: a tractor diesel factor, construction diesel factor, and a population diesel factor. It is assumed that 35 percent of the tractors in each county are diesel powered.² The construction diesel consumption fuel usage factor is applied to the number of 1973 non-building construction employees,⁹ where the 1973 data are assumed to be representative of 1974. The 1974 population⁷ is used to determine the remaining off-highway diesel consumption.

Emission factors for off-highway fuel consumption were obtained from Reference 6. The 1974 gasoline fuel consumption for each county is presented in Table 10. The 1974 diesel fuel consumption county totals are presented in Table 11. The 1974 calculated area source off-highway emissions are listed in Table 12.

4.3 RAILROADS

A railroad route map for the rail companies operating in the state was obtained from the Montana Department of Public Service Regulation. The rail companies operating in the state were contacted to obtain operating information for the sections of track used by each company. The information provided includes: miles of track, train frequency, and the number of locomotives per train.

To estimate total fuel consumption by county, the number of locomotive miles were calculated and a fuel factor of 2.25 gallons per mile per locomotive was applied.

Emission factors for locomotives were obtained from Reference 6. Total fuel consumption and calculated emissions are listed in Table 13.



4.4 AIRCRAFT

Airport operations are divided into four major categories: air carrier, general aviation, air taxi, and military. Data on air carrier operations by aircraft type were obtained from Airport Activity Statistics.²⁶ Military operations at two Air Force bases in the state were obtained from Military Air Traffic Activity Report.²⁷ The FAA in Helena, Montana provided data on other operations at the major domestic airports in the state.²⁸ From these data, total landing/takeoff cycles (LTO) were calculated for the four major categories by aircraft type. There were four assumptions made pertaining to the general aviation, air taxi, and military categories:

- Ninety percent of the general aviation LTO cycles were single engine piston powered aircraft; the remainder were two engine piston power aircraft.
- All air taxi LTO cycles were two engine piston powered aircraft.
- At domestic airports in cities in which an Air Force base is located, and at the Air Force bases, 95 percent of the military LTO cycles were military fighter plane type aircraft and the remainder were transport planes.
- At other domestic airports, 95 percent of the military LTO cycles were helicopters and the remainder were medium range jet powered aircraft.

Emission factors for each aircraft type were obtained from Reference 6. The LTO cycles and calculated emissions are listed in Table 14.

5.0 FUGITIVE DUST SOURCES

5.1 UNPAVED ROADS

The Montana Department of Highways provided two publications containing data on unpaved roads. Included in these publications were mileage totals by surface category²³ and 1972 daily VMT over the local road system²² for each county. It was assumed that 1972 data were representative of 1974.

In order to calculate the VMT by surface type, it was assumed that the average daily traffic (ADT) per mile of local road was in a fixed ratio of 1:5:10:40 for the four surface types: unimproved, graded and drained, gravel, and paved. Then, using this ratio and the data provided, it was possible to calculate VMT by surface type.¹

Emission factors for dust from unpaved roads were obtained from Reference 6. These emission factors were corrected for wet days and days of snow cover. The annual VMT by surface type and the calculated emissions are listed in Table 15.

5.2 AGRICULTURE

There are two sources of fugitive dust from agricultural activity: windblown dust and dust generated by agricultural operations. Windblown dust was estimated by use of the windblown dust equation.²⁹ Dust generated by agricultural operations was determined by using the emission factor equation for agricultural tilling.⁶

The Montana Department of Agriculture was contacted to obtain data on acres planted for each crop type by county

for the years 1972-73.³⁰ Data for 1974 were not published at the time of this analysis, so an average of the years was used to represent 1974 data.

Emission factors for windblown dust were obtained from Reference 29. These emission factors and the calculated emissions are listed in Table 16.

Emission factors for tilling operations were obtained from Reference 6. It is assumed that multiplying the emission factor by three will represent the emission factor for the combined emissions of all phases of field preparation and subsequent cultivation.

For agricultural activities, 80 percent of the emissions predicted by the tilling equation are likely to remain as suspended particulate.⁶ Therefore, the calculated emissions were reduced by 20 percent to find the amount of suspended particulate. The emission factors and the calculated emissions by county are recorded in Table 17.

5.3 CONSTRUCTION

The Montana Department of Highways was contacted to obtain data on highway projects constructed in 1974.³¹ Acreage of highway construction was determined from the miles and width of the project, as well as the length of time that the project was under construction. It was assumed that a width of 50 feet was exposed during construction of a two lane highway, and a width of 150 feet was exposed during construction of a four lane highway. It was further assumed that until a project was 50 percent complete it would still be an emission source. The miles and the months of construction for each county are listed in Table 18.

The emission factors for construction were obtained from Reference 29. The calculated emissions for each county are presented in Table 18.

5.4 AGGREGATE STORAGE PILES

The Montana Department of Highways provided data on the number of aggregate stockpiles in each county as of a September 1976 inventory.³² It is assumed that the amount of aggregate stockpiled remains relatively constant from year to year. Therefore, 1976 data are assumed to be representative of 1974. Based on information obtained from the Department of Highways, it was calculated that an average of 8400 tons of aggregate are stored in each stockpile.

Emission factors for aggregate storage piles were obtained from Reference 29. The calculated amount of aggregate stockpiled, emission factors, and emissions for each county are listed in Table 19.

5.5 DUST FROM PAVED ROADS

VMT data for the 56 Montana counties have already been generated to estimate exhaust emissions and emissions from unpaved roads. The VMT on unpaved roads were subtracted from VMT totals to obtain VMT on paved roads.

In Montana, the normal amount of loose material on road surfaces is increased substantially by the periodic sanding or salting of roads during the winter for snow and ice control. Roads maintained by the State Highway Department and major streets in most municipalities are sanded or salted. It is assumed that sand remains on the roads after the snow has melted and the pavement has dried approximately 20 days per year.

An emission factor of 6.1 gm/VMT was obtained from a recent publication.³³ This emission factor is applicable on days with no precipitation. An emission factor of 77 gm/VMT has been used in some previous emission inventories for estimating emissions from sanded roads.³⁴

The days of rain and snow cover have previously been

calculated for section 5.1. Using the above emission factors, number of days with precipitation for each county, and assuming 20 days of sanding, the average emission factor for each county is calculated as follows:

$$E = \frac{(P - 20) 6.1 + (20) 77}{365} \quad (\text{eq.1})$$

where E = emission factor gm/VMT

P = days of rain and snow cover

By applying the average emission factor calculated for each county to the county VMT on paved roads, the annual particulate emissions can be calculated. These data are listed in Table 20.



Table 2. 1974 Area Source Coal Combustion Emissions

| County | 1970 DU using 1974 heating coal degree days | | Avg room/ dwelling unit | Residential coal usage, ton/yr | 1974 Emissions, ton/yr | |
|----------------------------|---|-----------------|-------------------------------|--------------------------------------|------------------------------|------|
| | Part | SO ₂ | | | | |
| Beaverhead | 339 | 9048 | 4.3 | 3165 | 31.7 | 46.3 |
| Bighorn ^a | 209 | 6764 | 4.6 | 1561 | 15.6 | 22.8 |
| Blaine | 110 | 8543 | 4.5 | 1015 | 10.2 | 14.8 |
| Broadwater | 37 | 7302 | 4.7 | 305 | 3.1 | 4.5 |
| Carbon ^a | 224 | 7215 | 4.8 | 1862 | 18.6 | 27.2 |
| Carter ^a | - | 7642 | 4.9 | - | - | - |
| Cascade | 40 | 7703 | 4.6 | 340 | 3.4 | 5.0 |
| Chouteau | - | 7362 | 5.0 | - | - | - |
| Custer ^a | 95 | 7084 | 4.7 | 759 | 7.6 | 11.1 |
| Daniels | - | 7945 | 4.8 | - | - | - |
| Dawson | 18 | 7242 | 4.7 | 147 | 1.5 | 2.2 |
| Deerlodge ^a | - | 8394 | 4.3 | - | - | - |
| Fallon ^a | 82 | 7084 | 4.9 | 683 | 6.8 | 10.0 |
| Fergus | 350 | 7695 | 4.7 | 3038 | 30.4 | 44.4 |
| Flathead ^a | - | 8161 | 4.8 | - | - | - |
| Gallatin | - | 8376 | 4.7 | - | - | - |
| Garfield | 16 | 7293 | 4.1 | 115 | 1.2 | 1.7 |
| Glacier | - | 8590 | 4.4 | - | - | - |
| Golden Valley | 69 | 7875 | 5.3 | 691 | 6.9 | 10.1 |
| Granite | 38 | 8284 | 4.7 | 355 | 3.6 | 5.2 |
| Hill | 50 | 8277 | 4.5 | 447 | 4.5 | 6.5 |
| Jefferson | 44 | 7768 | 4.6 | 377 | 3.8 | 5.5 |
| Judith Basin | 36 | 8114 | 5.1 | 358 | 3.6 | 5.2 |
| Lake ^a | 45 | 6998 | 4.6 | 348 | 3.5 | 5.1 |
| Lewis & Clark ^a | 19 | 7663 | 4.6 | 161 | 1.6 | 2.4 |
| Liberty | - | 8060 | 5.3 | - | - | - |
| Lincoln | - | 7674 | 4.5 | - | - | - |
| McCone | 27 | 8394 | 5.0 | 272 | 2.7 | 4.0 |
| Madison | 125 | 7752 | 4.7 | 1093 | 10.9 | 16.0 |
| Meagher | 61 | 8530 | 4.1 | 512 | 5.1 | 7.5 |
| Mineral | - | 7374 | 4.6 | - | - | - |
| Missoula ^a | 215 | 7994 | 4.6 | 1897 | 19.0 | 27.8 |
| Musselshell | 944 | 6763 | 4.2 | 6435 | 64.4 | 94.1 |
| Park | 28 | 8347 | 4.5 | 252 | 2.5 | 3.7 |
| Petroleum | - | 6763 | 4.7 | - | - | - |
| Phillips | 20 | 9087 | 4.5 | 196 | 2.0 | 2.9 |
| Pondera | 40 | 8288 | 4.7 | 374 | 3.7 | 5.5 |
| Powder River ^a | 83 | 7481 | 4.6 | 685 | 6.9 | 10.0 |
| Powell | 24 | 8628 | 4.8 | 239 | 2.4 | 3.5 |
| Prairie | 56 | 8449 | 4.7 | 534 | 5.3 | 7.8 |
| Ravalli | 18 | 7071 | 4.7 | 144 | 1.4 | 2.1 |
| Richland | 97 | 8556 | 4.7 | 936 | 9.4 | 13.7 |
| Roosevelt | - | 9311 | 4.6 | - | - | - |
| Rosebud ^a | 205 | 7289 | 4.2 | 1506 | 15.1 | 22.0 |
| Sanders | 40 | 7010 | 4.3 | 289 | 2.9 | 4.2 |
| Sheridan ^a | 98 | 9387 | 4.9 | 1082 | 10.8 | 15.8 |
| Silverbow ^a | 53 | 8837 | 4.5 | 506 | 5.1 | 7.4 |
| Stillwater ^a | 83 | 7520 | 4.8 | 719 | 7.2 | 10.5 |
| Sweetgrass ^a | 18 | 7687 | 4.8 | 159 | 1.6 | 2.3 |
| Teton | - | 7405 | 4.9 | - | - | - |
| Toole | - | 8293 | 4.8 | - | - | - |
| Treasure ^a | 61 | 7205 | 4.9 | 517 | 5.2 | 7.6 |
| Valley | - | 8963 | 5.2 | - | - | - |
| Wheatland | 88 | 7514 | 4.8 | 909 | 9.1 | 13.3 |
| Wibaux | 23 | 8278 | 5.2 | 238 | 2.4 | 3.5 |
| Yellowstone ^a | 303 | 6713 | 4.8 | 2343 | 23.4 | 34.3 |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.



Table 3. 1974 Area Source Distillate Oil Combustion Emissions

| County | 1970 DU using fuel oil | 1974 Residential consumption, 10 ³ gal/yr | 1974 Pop | 1974 Comm/Inst consumption, 10 ³ gal/yr | 1973 Mfg employees | 1974 Industrial, consumption, 10 ³ gal/yr |
|----------------------------|------------------------------|---|-------------|---|-----------------------|---|
| Beaverhead | 712 | 997 | 8300 | 189 | 31 | 48 |
| Bighorn ^a | 309 | 346 | 10500 | 239 | 113 | 240 |
| Blaine | 409 | 566 | 6800 | 155 | 24 | 51 |
| Broadwater | 302 | 373 | 2700 | 62 | 30 ^b | 64 |
| Carbon ^a | 175 | 218 | 7900 | 180 | 38 | 81 |
| Carter ^a | 220 | 297 | 1900 | 43 | 30 ^b | 64 |
| Cascade | 1136 | 1449 | 84300 | 1923 | 2173 | 4619 |
| Chouteau | 1208 | 1601 | 6400 | 146 | 50 ^b | 106 |
| Custer ^a | 152 | 182 | 12300 | 281 | 100 | 213 |
| Daniels | 505 | 693 | 3200 | 73 | 30 ^b | 64 |
| Dawson | 132 | 162 | 10900 | 249 | 147 | 312 |
| Deerlodge ^a | 105 | 136 | 15100 | 344 | 50 ^b | 106 |
| Fallon ^a | 42 | 52 | 3900 | 89 | 21 | 45 |
| Fergus | 760 | 990 | 12900 | 294 | 158 | 336 |
| Flathead ^a | 3733 | 5264 | 42600 | 972 | 3281 | 6974 |
| Gallatin | 1227 | 1738 | 36000 | 821 | 1067 | 2268 |
| Garfield | 101 | 109 | 1600 | 36 | 10 ^b | 21 |
| Glacier | 232 | 316 | 11400 | 260 | 61 | 130 |
| Golden Valley | 129 | 194 | 900 | 21 | 10 ^b | 21 |
| Granite | 103 | 144 | 2700 | 62 | 174 | 370 |
| Hill | 709 | 951 | 17700 | 404 | 198 | 4197 |
| Jefferson | 299 | 385 | 6900 | 157 | 14 | 297 |
| Judith Basin | 473 | 705 | 2700 | 62 | 8 | 17 |
| Lake ^a | 3007 | 3484 | 16700 | 381 | 362 | 744 |
| Lewis & Clark ^a | 347 | 440 | 36000 | 821 | 711 | 1509 |
| Liberty | 120 | 185 | 2300 | 52 | 30 ^b | 64 |
| Lincoln | 2482 | 3086 | 17000 | 388 | 1301 | 1717 |
| McCone | 560 | 846 | 2700 | 62 | 30 ^b | 64 |
| Madison | 756 | 992 | 5900 | 135 | 50 ^b | 106 |
| Meagher | 184 | 232 | 2100 | 48 | 157 | 334 |
| Mineral | 454 | 554 | 3600 | 82 | 30 ^b | 64 |
| Missoula ^a | 1401 | 1855 | 63700 | 1453 | 3428 | 7287 |
| Musselshell | 127 | 130 | 4200 | 96 | 41 | 87 |
| Park | 346 | 468 | 11900 | 271 | 254 | 540 |
| Petroleum | 99 | 113 | 600 | 14 | 10 ^b | 21 |
| Phillips | 273 | 402 | 5500 | 125 | 27 | 557 |
| Pondera | 315 | 442 | 6700 | 153 | 50 ^b | 106 |
| Powder River ^a | 79 | 98 | 2200 | 50 | 30 ^b | 64 |
| Powell | 266 | 397 | 7400 | 169 | 238 | 506 |
| Prairie | 100 | 143 | 1900 | 43 | 30 ^b | 64 |
| Ravalli | 673 | 805 | 17900 | 408 | 442 | 920 |
| Richland | 85 | 123 | 9900 | 226 | 318 | 295 |
| Roosevelt | 513 | 791 | 10500 | 240 | 61 | 130 |
| Rosebud ^a | 217 | 239 | 7700 | 176 | 170 | neg |
| Sanders | 1266 | 1374 | 7800 | 178 | 585 | 1243 |
| Sheridan | 813 | 1346 | 5300 | 121 | 50 ^b | 106 |
| Silverbow ^a | 111 | 159 | 43200 | 985 | 671 | 1356 |
| Stillwater ^a | 144 | 187 | 5200 | 119 | 69 | 147 |
| Sweetgrass ^a | 149 | 198 | 3100 | 71 | 30 ^b | 64 |
| Teton | 594 | 776 | 6400 | 146 | 22 | 47 |
| Toole | 128 | 183 | 5400 | 123 | 53 | 113 |
| Treasure ^a | 107 | 136 | 1200 | 27 | 10 ^b | 21 |
| Valley | 460 | 772 | 13000 | 296 | 50 | 106 |
| Wheatland | 62 | 80 | 2500 | 57 | 30 ^b | 64 |
| Wibaux | 18 | 28 | 1400 | 32 | 30 ^b | 64 |
| Yellowstone ^a | 421 | 488 | 94300 | 2151 | 3421 | 6871 |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

^b estimated.

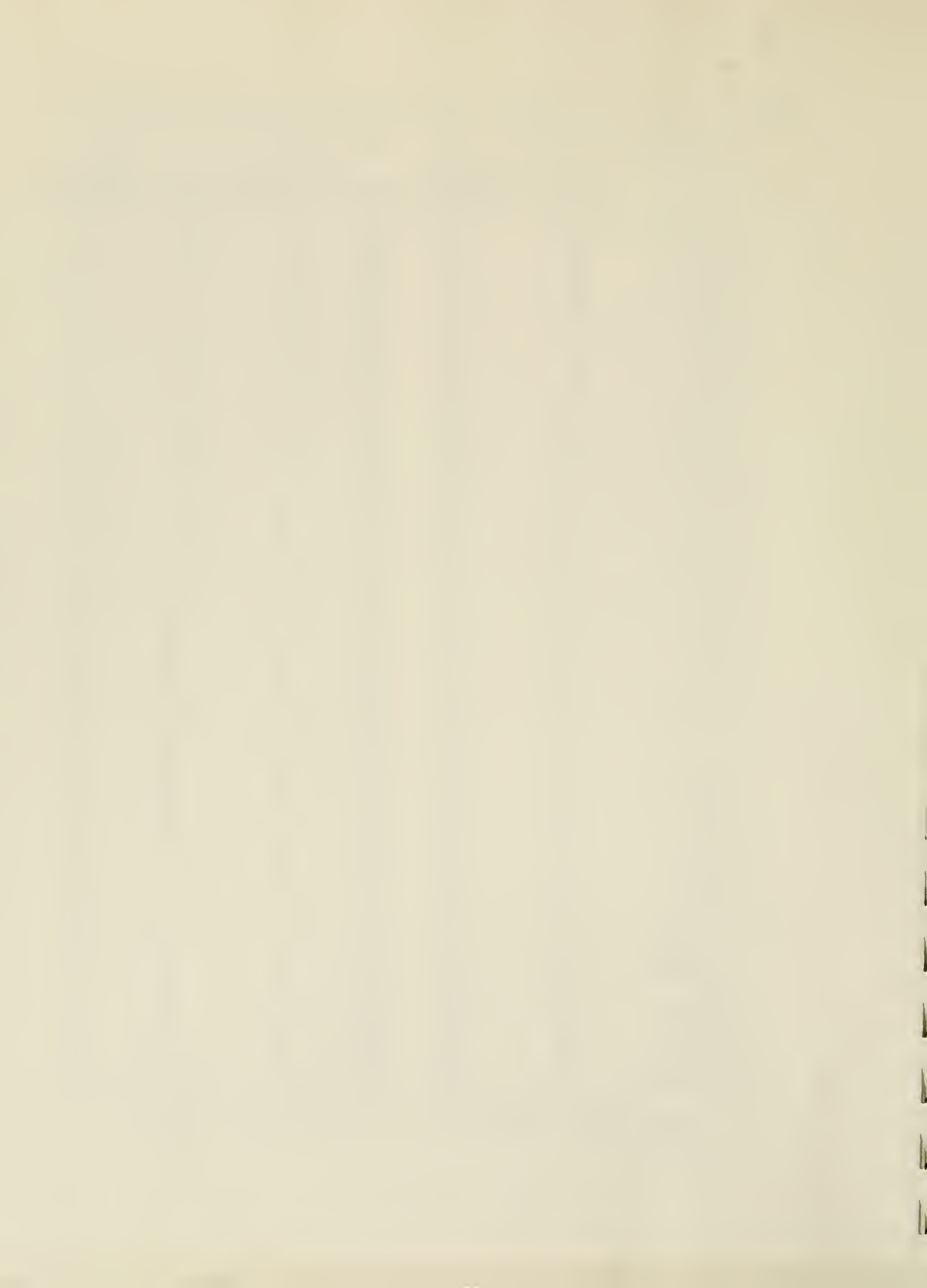


Table 3 (continued). 1974 Area Source Distillate
Oil Combustion Emissions

| County | 1974 | 1974 | 1974 | 1974 | |
|----------------------------|--|---|---|------------------------------|-----------------|
| | Point source consumption, 10 ³ gal/yr | Area source industrial consumption, 10 ³ gal/yr | Area source distillate oil consumption, 10 ³ gal/yr | Emissions, ton/yr Part | SO ₂ |
| Beaverhead | 18 | 30 | 1216 | 9.1 | 43.2 |
| Bighorn ^a | | 240 | 825 | 6.2 | 29.3 |
| Blaine | | 51 | 745 | 6.6 | 26.4 |
| Broadwater | | 64 | 499 | 3.7 | 17.7 |
| Carbon ^a | | 81 | 479 | 3.6 | 17.0 |
| Carter ^a | | 64 | 404 | 3.0 | 14.3 |
| Cascade | | 4619 | 7991 | 59.9 | 283.7 |
| Chouteau | | 106 | 1853 | 13.9 | 65.8 |
| Custer ^a | | 213 | 676 | 5.1 | 24.0 |
| Daniels | | 64 | 830 | 6.2 | 29.5 |
| Dawson | | 312 | 723 | 5.4 | 25.7 |
| Deerlodge ^a | | 106 | 586 | 4.4 | 20.8 |
| Fallon ^a | | 45 | 186 | 1.4 | 6.6 |
| Fergus | | 336 | 1620 | 12.6 | 57.5 |
| Flathead ^a | | 6974 | 13210 | 99.1 | 469.0 |
| Gallatin | | 2268 | 4827 | 36.2 | 171.4 |
| Garfield | | 21 | 166 | 1.2 | 5.9 |
| Glacier | | 130 | 706 | 5.3 | 25.1 |
| Golden Valley | | 21 | 236 | 1.8 | 8.4 |
| Granite | | 370 | 576 | 4.3 | 20.4 |
| Hill | | 4197 | 5552 | 41.6 | 197.1 |
| Jefferson | | 297 | 839 | 6.3 | 29.8 |
| Judith Basin | | 17 | 784 | 5.9 | 27.8 |
| Lake ^a | 25 | 719 | 4584 | 34.4 | 162.7 |
| Lewis & Clark ^a | 2 | 1507 | 2768 | 20.8 | 98.3 |
| Liberty | | 64 | 301 | 2.3 | 10.7 |
| Lincoln | 1048 | 669 | 4143 | 31.1 | 147.1 |
| McCone | | 64 | 972 | 7.3 | 34.5 |
| Madison | | 106 | 1233 | 9.2 | 43.8 |
| Meagher | | 334 | 614 | 4.6 | 21.8 |
| Mineral | | 64 | 700 | 5.2 | 24.8 |
| Missoula ^a | | 7287 | 10595 | 79.5 | 376.1 |
| Musselshell | | 87 | 313 | 2.3 | 11.1 |
| Park | | 540 | 1279 | 9.6 | 45.4 |
| Petroleum | | 21 | 148 | 1.1 | 5.3 |
| Phillips | | 57 | 584 | 4.4 | 20.7 |
| Pondera | | 106 | 701 | 5.3 | 24.9 |
| Powder River ^a | | 64 | 212 | 1.6 | 7.5 |
| Powell | | 506 | 1072 | 8.0 | 38.1 |
| Prairie | | 64 | 250 | 1.9 | 8.9 |
| Ravalli | 20 | 900 | 2113 | 15.8 | 75.0 |
| Richland | 381 | neg | 349 | 2.6 | 12.4 |
| Roosevelt | | 130 | 1161 | 8.7 | 41.2 |
| Rosebud ^a | 768 | neg | 415 | 3.1 | 14.7 |
| Sanders | | 1243 | 2795 | 21.0 | 99.2 |
| Sheridan | | 106 | 1573 | 11.8 | 55.8 |
| Silverbow ^a | 70 | 1286 | 2430 | 18.2 | 86.3 |
| Stillwater ^a | | 147 | 453 | 3.4 | 16.1 |
| Sweetgrass ^a | | 64 | 333 | 2.5 | 11.8 |
| Teton | | 47 | 969 | 7.3 | 34.4 |
| Toole | | 113 | 419 | 3.1 | 14.9 |
| Treasure ^a | | 21 | 184 | 1.4 | 6.5 |
| Valley | | 106 | 1174 | 8.8 | 41.7 |
| Wheatland | | 64 | 201 | 1.5 | 7.1 |
| Wibaux | | 64 | 124 | 0.9 | 4.4 |
| Yellowstone ^a | 401 | 6470 | 9109 | 68.3 | 323.4 |

^a counties included in Montana AQMA Area Source Emission Inventory,
December 1975.

Table 4. 1974 Area Source Residual Oil
Combustion Emissions

| County | 1974 | 1974 | 1974 | 1974 | |
|----------------------------|--|---|---|-------|---|
| | Comm/Inst, consumption, 10 ³ gal/yr | Area source industrial consumption, 10 ³ gal/yr | Area source residual oil consumption, 10 ³ gal/yr | Part | Emissions, ton/yr SO ₂ |
| Beaverhead | 216 | 104 | 320 | 3.7 | 30.1 |
| Bighorn ^a | 274 | 378 | 652 | 7.5 | 61.4 |
| Blaine | 177 | 80 | 257 | 3.0 | 24.2 |
| Broadwater | 70 | 100 | 170 | 2.0 | 16.0 |
| Carbon ^a | 206 | 127 | 333 | 3.8 | 31.4 |
| Carter ^a | 50 | 100 | 150 | 1.7 | 14.1 |
| Cascade | 2197 | 7275 | 9472 | 108.9 | 892.3 |
| Chouteau | 167 | 167 | 334 | 3.8 | 31.5 |
| Custer ^a | 321 | 335 | 656 | 7.5 | 61.8 |
| Daniels | 83 | 100 | 183 | 2.1 | 17.2 |
| Dawson | 284 | 492 | 776 | 8.9 | 73.1 |
| Deerlodge ^a | 393 | 167 | 560 | 6.4 | 52.8 |
| Fallon ^a | 102 | 70 | 172 | 2.0 | 16.2 |
| Fergus | 336 | 529 | 865 | 9.9 | 81.5 |
| Flathead ^a | 1110 | 10985 | 12095 | 139.1 | 1139.3 |
| Gallatin | 938 | 3572 | 4510 | 51.9 | 424.8 |
| Garfield | 42 | 33 | 75 | 0.9 | 7.1 |
| Glacier | 297 | 204 | 501 | 5.8 | 47.2 |
| Golden Valley | 23 | 33 | 56 | 0.6 | 5.3 |
| Granite | 70 | 583 | 653 | 7.5 | 61.5 |
| Hill | 461 | 663 | 1124 | 12.9 | 105.9 |
| Jefferson | 180 | 47 | 227 | 2.6 | 21.4 |
| Judith Basin | 70 | 27 | 97 | 1.1 | 9.1 |
| Lake ^a | 435 | 1212 | 1647 | 18.9 | 155.1 |
| Lewis & Clark ^a | 938 | 2380 | 3318 | 38.2 | 312.6 |
| Liberty | 60 | 100 | 160 | 1.8 | 15.1 |
| Lincoln | 443 | neg | 443 | 5.1 | 41.7 |
| McCone | 70 | 100 | 170 | 2.0 | 16.0 |
| Madison | 154 | 167 | 321 | 3.7 | 30.2 |
| Meagher | 55 | 526 | 581 | 6.7 | 54.7 |
| Mineral | 94 | 100 | 194 | 2.2 | 18.3 |
| Missoula ^a | 1660 | 11477 | 13137 | 151.1 | 1237.5 |
| Musselshell | 109 | 137 | 246 | 2.8 | 23.2 |
| Park | 310 | 850 | 1160 | 13.3 | 109.3 |
| Petroleum | 16 | 33 | 49 | 0.6 | 4.6 |
| Phillips | 143 | 90 | 233 | 2.7 | 21.9 |
| Pondera | 175 | 167 | 342 | 3.9 | 32.2 |
| Powder River ^a | 57 | 100 | 157 | 1.8 | 14.8 |
| Powell | 193 | 797 | 990 | 11.4 | 93.3 |
| Prairie | 50 | 100 | 150 | 1.7 | 14.1 |
| Ravalli | 466 | 1480 | 1946 | 22.4 | 183.3 |
| Richland | 258 | 1065 | 1323 | 15.2 | 124.6 |
| Roosevelt | 274 | 4 | 278 | 3.2 | 26.2 |
| Rosebud ^a | 201 | 569 | 770 | 8.9 | 72.5 |
| Sanders | 203 | 1959 | 2162 | 24.9 | 203.7 |
| Sheridan | 138 | 167 | 305 | 3.5 | 28.7 |
| Silverbow ^a | 1126 | 2247 | 3373 | 38.8 | 317.7 |
| Stillwater ^a | 136 | 231 | 367 | 4.2 | 34.6 |
| Sweetgrass ^a | 81 | 100 | 181 | 2.1 | 17.0 |
| Teton | 167 | 74 | 241 | 2.8 | 22.7 |
| Toole | 141 | 177 | 318 | 3.7 | 30.0 |
| Treasure ^a | 31 | 33 | 64 | 0.7 | 6.0 |
| Valley | 339 | 167 | 506 | 5.8 | 47.7 |
| Wheatland | 65 | 100 | 165 | 1.9 | 15.5 |
| Wibaux | 365 | 100 | 465 | 5.3 | 43.8 |
| Yellowstone ^a | 2457 | 11454 | 13911 | 160.0 | 1310.4 |

^a counties included in Montana AQMA Area Source Emission
Inventory, December 1975.

Table 5. 1974 Area Source Natural Gas Combustion Emissions

| County | 1974 | 1974 | 1974 | 1974 | |
|----------------------------|---|---|--|------------------------------|-----------------|
| | Natural gas deliveries 10 ⁶ cu ft | Point source natural gas consumption 10 ⁶ cu ft | Area source natural gas consumption 10 ⁶ cu ft | Emissions, ton/yr Part | SO ₂ |
| Beaverhead | 532 | 166 | 366 | 1.8 | 0.1 |
| Bighorn ^a | 365 | - | 365 | 1.8 | 0.1 |
| Blaine | 338 | 11 | 327 | 1.6 | 0.1 |
| Broadwater | - | - | - | - | - |
| Carbon ^a | 210 | - | 210 | 1.0 | 0.1 |
| Carter ^a | - | - | - | - | - |
| Cascade | 14104 | 1856 | 12248 | 61.2 | 3.7 |
| Chouteau | - | - | - | - | - |
| Custer ^a | 1457 | - | 1457 | 7.3 | 0.4 |
| Daniels | - | - | - | - | - |
| Dawson | 847 | 28 | 819 | 4.1 | 0.2 |
| Deerlodge ^a | 10483 | 9397 | 1086 | 5.4 | 0.3 |
| Fallon ^a | 1153 | - | 1153 | 5.8 | 0.3 |
| Fergus | 921 | 209 | 712 | 3.6 | 0.2 |
| Flathead ^a | 2741 | 565 | 2176 | 10.9 | 0.7 |
| Gallatin | 4443 | 2463 | 1980 | 9.9 | 0.6 |
| Garfield | - | - | - | - | - |
| Glacier | 1655 | 617 | 1038 | 5.2 | 0.3 |
| Golden Valley | - | - | - | - | - |
| Granite | 190 | - | 190 | 1.0 | 0.1 |
| Hill | 1183 | - | 1183 | 5.9 | 0.4 |
| Jefferson | 293 | - | 293 | 1.5 | 0.1 |
| Judith Basin | - | - | - | - | - |
| Lake ^a | - | - | - | - | - |
| Lewis & Clark ^a | 2921 | 584 | 2337 | 11.7 | 0.7 |
| Liberty | 115 | - | 115 | 0.6 | neg |
| Lincoln | - | - | - | - | - |
| McCone | - | - | - | - | - |
| Madison | 112 | - | 112 | 0.6 | neg |
| Meagher | - | - | - | - | - |
| Mineral | - | - | - | - | - |
| Missoula ^a | 8958 | 5462 | 3496 | 17.5 | 1.0 |
| Musselshell | - | - | - | - | - |
| Park | 815 | - | 815 | 4.1 | 0.2 |
| Petroleum | - | - | - | - | - |
| Phillips | 390 | - | 390 | 2.0 | 0.1 |
| Pondera | 285 | - | 285 | 1.4 | 0.1 |
| Powder River ^a | 814 | - | 814 | 4.1 | 0.2 |
| Powell | 796 | 282 | 514 | 2.6 | 0.2 |
| Prairie | 87 | - | 87 | 0.4 | neg |
| Ravalli | 594 | - | 594 | 3.0 | 0.2 |
| Richland | 2067 | 1426 | 641 | 3.2 | 0.2 |
| Roosevelt | 600 | 48 | 552 | 2.8 | 0.2 |
| Rosebud ^a | 195 | - | 195 | 1.0 | 0.1 |
| Sanders | - | - | - | - | - |
| Sheridan | - | - | - | - | - |
| Silverbow ^a | 4683 | 1509 | 3174 | 15.9 | 1.0 |
| Stillwater ^a | 59 | - | 59 | 0.3 | - |
| Sweetgrass ^a | 141 | - | 141 | 0.7 | - |
| Teton | 231 | - | 231 | 1.2 | 0.1 |
| Toole | 561 | 33 | 528 | 2.6 | 0.2 |
| Treasure ^a | - | - | - | - | - |
| Valley | 809 | - | 809 | 4.0 | 0.2 |
| Wheatland | 162 | - | 162 | 0.8 | neg |
| Wibaux | 70 | - | 70 | 0.4 | neg |
| Yellowstone ^a | 11558 | 4603 | 6955 | 34.8 | 2.1 |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

Table 6. 1974 Area Source Wood Combustion Emissions

| County | 1970 DU using wood | 1974 Residential consumption, ton/yr | 1974 Emissions, ton/yr | |
|----------------------------|--------------------------|---|------------------------------|-----------------|
| | | | Part | SO ₂ |
| Beaverhead | 173 | 2288 | 11.4 | 1.7 |
| Bighorn ^a | 14 | 148 | 0.7 | 0.1 |
| Blaine | 22 | 288 | 1.4 | 0.2 |
| Broadwater | 45 | 525 | 2.6 | 0.4 |
| Carbon ^a | - | - | - | - |
| Carter ^a | - | - | - | - |
| Cascade | 44 | 530 | 2.6 | 0.4 |
| Chouteau | - | - | - | - |
| Custer ^a | - | - | - | - |
| Daniels | - | - | - | - |
| Dawson | - | - | - | - |
| Deerlodge ^a | 167 | 2049 | 10.2 | 1.5 |
| Fallon ^a | - | - | - | - |
| Fergus | 19 | 234 | 1.2 | 0.2 |
| Flathead ^a | 312 | 4155 | 20.8 | 3.1 |
| Gallatin | 59 | 790 | 4.0 | 0.6 |
| Garfield | - | - | - | - |
| Glacier | 87 | 1118 | 5.6 | 0.8 |
| Golden Valley | - | - | - | - |
| Granite | - | - | - | - |
| Hill | 20 | 353 | 1.8 | 0.3 |
| Jefferson | 49 | 595 | 3.0 | 0.4 |
| Judith Basin | - | - | - | - |
| Lake ^a | 412 | 4509 | 22.5 | 3.4 |
| Lewis & Clark ^a | 116 | 1390 | 7.0 | 1.0 |
| Liberty | - | - | - | - |
| Lincoln | 639 | 7503 | 37.5 | 5.6 |
| McCone | - | - | - | - |
| Madison | 148 | 1833 | 9.2 | 1.4 |
| Meagher | 124 | 1474 | 7.4 | 1.1 |
| Mineral | 36 | 415 | 2.1 | 0.3 |
| Missoula ^a | 266 | 3326 | 16.6 | 2.5 |
| Musselshell | - | - | - | - |
| Park | 107 | 1366 | 6.8 | 1.0 |
| Petroleum | - | - | - | - |
| Phillips | - | - | - | - |
| Pondera | 60 | 795 | 4.0 | 0.6 |
| Powder River ^a | 19 | 222 | 1.1 | 0.2 |
| Powell | 105 | 1478 | 7.4 | 1.1 |
| Prairie | - | - | - | - |
| Ravalli | 451 | 5096 | 25.5 | 3.8 |
| Richland | - | - | - | - |
| Roosevelt | - | - | - | - |
| Rosebud ^a | 51 | 531 | 2.7 | 0.4 |
| Sanders | 260 | 2665 | 13.3 | 2.0 |
| Sheridan | - | - | - | - |
| Silverbow ^a | 109 | 1473 | 7.4 | 1.1 |
| Stillwater ^a | 38 | 466 | 2.3 | 0.3 |
| Sweetgrass ^a | 63 | 790 | 4.0 | 0.6 |
| Teton | - | - | - | - |
| Toole | - | - | - | - |
| Treasure ^a | - | - | - | - |
| Valley | - | - | - | - |
| Wheatland | - | - | - | - |
| Wibaux | - | - | - | - |
| Yellowstone ^a | - | - | - | - |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

Tsble 7. 1974 Area Source LPG Combustion Emissions

| County | 1970 | 1974 | 1974 | 1974 | 1974 | 1974 | |
|----------------------------|--------------------|--|---|--|--|----------------------|----------------------|
| | DU using LPG | Res LPG cons, 10 ³ gal/yr | Comm/Inst LPG cons, 10 ³ gal/yr | Ind LPG cons, 10 ³ gal/yr | County total LPG cons, 10 ³ gal/yr | Emissions, ton/yr | Part SO ₂ |
| Beaverhead | 135 | 222 | 229 | 7 | 458 | 0.4 | 0.2 |
| Bighorn ^a | 683 | 1123 | 290 | 25 | 1438 | 1.4 | 0.6 |
| Blaine | 252 | 414 | 188 | 5 | 607 | 0.6 | 0.3 |
| Broadwater | 255 | 419 | 75 | 7 | 501 | 0.5 | 0.2 |
| Carbon ^a | 234 | 385 | 218 | 9 | 612 | 0.6 | 0.3 |
| Carter ^a | 447 | 735 | 52 | 7 | 794 | 0.8 | 0.4 |
| Cascade | 1070 | 1760 | 2327 | 489 | 4576 | 4.3 | 2.1 |
| Chouteau | 428 | 704 | 177 | 11 | 892 | 0.8 | 0.4 |
| Custer ^a | 404 | 664 | 339 | 23 | 1026 | 1.0 | 0.5 |
| Daniels | 297 | 488 | 88 | 7 | 583 | 0.6 | 0.3 |
| Dawson | 308 | 506 | 301 | 33 | 840 | 0.8 | 0.4 |
| Deerlodge ^a | 59 | 97 | 417 | 11 | 525 | 0.5 | 0.2 |
| Fallon ^a | 195 | 321 | 108 | 5 | 434 | 0.4 | 0.2 |
| Fergus | 293 | 482 | 356 | 36 | 874 | 0.8 | 0.4 |
| Flathead ^a | 321 | 528 | 1176 | 739 | 2443 | 2.3 | 1.1 |
| Gallatin | 764 | 1256 | 994 | 240 | 2490 | 2.4 | 1.1 |
| Garfield | 310 | 510 | 44 | 2 | 556 | 0.5 | 0.3 |
| Glacier | 254 | 418 | 315 | 14 | 747 | 0.7 | 0.3 |
| Golden Valley | 109 | 179 | 25 | 2 | 206 | 0.2 | 0.1 |
| Granite | 100 | 164 | 75 | 39 | 278 | 0.3 | 0.1 |
| Hill | 226 | 372 | 488 | 45 | 905 | 0.9 | 0.4 |
| Jefferson | 137 | 225 | 190 | 3 | 418 | 0.4 | 0.2 |
| Judith Basin | 175 | 288 | 75 | 2 | 365 | 0.3 | 0.2 |
| Lake ^a | 590 | 970 | 461 | 82 | 1513 | 1.4 | 0.7 |
| Lewis & Clark ^a | 639 | 1050 | 994 | 160 | 2204 | 2.1 | 1.0 |
| Liberty | 45 | 74 | 63 | 7 | 144 | 0.1 | 0.1 |
| Lincoln | 874 | 1437 | 469 | 293 | 2199 | 2.1 | 1.0 |
| McCone | 266 | 437 | 75 | 7 | 510 | 0.5 | 0.2 |
| Madison | 276 | 454 | 163 | 11 | 628 | 0.6 | 0.3 |
| Meagher | 219 | 360 | 58 | 35 | 453 | 0.4 | 0.2 |
| Mineral | 168 | 276 | 99 | 7 | 382 | 0.4 | 0.2 |
| Missoula ^a | 381 | 627 | 1758 | 772 | 3157 | 3.0 | 1.4 |
| Musselshell | 250 | 411 | 116 | 9 | 536 | 0.5 | 0.2 |
| Park | 382 | 628 | 328 | 57 | 1013 | 1.0 | 0.5 |
| Petroleum | 20 | 33 | 17 | 2 | 52 | 0.0 | 0.0 |
| Phillips | 160 | 263 | 152 | 6 | 421 | 0.4 | 0.2 |
| Pondera | 217 | 357 | 185 | 11 | 553 | 0.5 | 0.2 |
| Powder River ^a | 514 | 845 | 61 | 7 | 913 | 0.9 | 0.4 |
| Powell | 160 | 263 | 204 | 54 | 521 | 0.5 | 0.2 |
| Prairie | 99 | 163 | 52 | 7 | 222 | 0.2 | 0.1 |
| Ravalli | 339 | 557 | 494 | 100 | 1152 | 1.1 | 0.5 |
| Richland | 559 | 919 | 273 | 72 | 1264 | 1.2 | 0.6 |
| Roosevelt | 682 | 1122 | 290 | 14 | 1426 | 1.4 | 0.6 |
| Rosebud ^a | 545 | 896 | 212 | 38 | 1146 | 1.1 | 0.5 |
| Sanders | 421 | 692 | 215 | 132 | 1039 | 1.0 | 0.5 |
| Sheridan | 760 | 1250 | 146 | 11 | 1407 | 1.3 | 0.6 |
| Silverbow ^a | 220 | 362 | 1192 | 151 | 1705 | 1.6 | 0.8 |
| Stillwater ^a | 236 | 388 | 144 | 16 | 548 | 0.5 | 0.2 |
| Sweetgrass ^a | 165 | 271 | 86 | 7 | 364 | 0.3 | 0.2 |
| Teton | 238 | 391 | 177 | 5 | 573 | 0.5 | 0.3 |
| Toole | 164 | 270 | 149 | 12 | 431 | 0.4 | 0.2 |
| Treasure ^a | 70 | 115 | 33 | 2 | 150 | 0.1 | 0.1 |
| Valley | 281 | 462 | 359 | 11 | 832 | 0.8 | 0.4 |
| Wheatland | 166 | 273 | 69 | 7 | 349 | 0.3 | 0.2 |
| Wibaux | 161 | 265 | 39 | 7 | 311 | 0.3 | 0.1 |
| Yellowstone ^a | 780 | 1283 | 2603 | 770 | 4656 | 4.4 | 2.1 |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

Table 8. 1974 Area Source Open Burning Emissions

| County | Total acres wheat, barley, & oats | Part emissions, ton/yr | Total slash acres burned | Part emissions, ton/yr | Forest fire acres burned | Part emissions, ton/yr |
|----------------------------|---|------------------------------|-----------------------------------|------------------------------|-----------------------------------|------------------------------|
| Beaverhead | 14000 | 6 | 1194 | 1343 | 839 | 3083 |
| Bighorn ^a | 1795 | 38 | - | - | - | - |
| Blaine | 184500 | 78 | - | - | - | - |
| Broadwater | 40350 | 17 | 1054 | 1186 | 12 | 44 |
| Carbon ^a | 821 | 17 | 132 | 148 | 292 | 1073 |
| Carter ^a | 833 | 18 | 29 | 33 | 90 | 331 |
| Cascade | 211700 | 90 | 442 | 497 | 5 | 18 |
| Chouteau | 670750 | 285 | 79 | 89 | 1 | 4 |
| Custer ^a | 570 | 12 | - | - | - | - |
| Daniels | 222100 | 94 | - | - | - | - |
| Dawson | 169800 | 72 | - | - | - | - |
| Deerlodge ^a | 28 | 1 | 389 | 632 | 97 | 436 |
| Fallon ^a | 1733 | 37 | - | - | - | - |
| Fergus | 223700 | 95 | 231 | 260 | 2 | 7 |
| Flathead ^a | 918 | 20 | 6781 | 11019 | 648 | 2916 |
| Gallatin | 102550 | 44 | 665 | 748 | 208 | 764 |
| Garfield | 71850 | 31 | - | - | - | - |
| Glacier | 180050 | 77 | 64 | 72 | 1 | 4 |
| Golden Valley | 30150 | 13 | 59 | 66 | 1 | 4 |
| Granite | 2250 | 1 | 3060 | 4972 | 384 | 1728 |
| Hill | 570500 | 242 | - | - | - | - |
| Jefferson | 22050 | 9 | 2598 | 2923 | 92 | 338 |
| Judith Basin | 119850 | 51 | 728 | 819 | 8 | 29 |
| Lake ^a | 406 | 9 | 566 | 920 | 16 | 72 |
| Lewis & Clark ^a | 623 | 13 | 4190 | 5761 | 597 | 2418 |
| Liberty | 275200 | 96 | - | - | - | - |
| Lincoln | 2750 | 1 | 11741 | 13209 | 389 | 1430 |
| McCone | 217150 | 92 | - | - | - | - |
| Madison | 18950 | 8 | 1127 | 1268 | 418 | 1536 |
| Meagher | 14000 | 6 | 1347 | 1515 | 206 | 757 |
| Mineral | 1650 | 1 | 2004 | 3256 | 179 | 806 |
| Missoula ^a | 220 | 5 | 1553 | 2524 | 446 | 2007 |
| Musselshell | 24300 | 10 | - | - | - | - |
| Park | 26650 | 11 | 885 | 996 | 292 | 1073 |
| Petroleum | 9850 | 4 | - | - | - | - |
| Phillips | 174100 | 74 | - | - | - | - |
| Pondera | 276250 | 117 | 265 | 298 | 3 | 11 |
| Powder River ^a | 849 | 18 | 104 | 117 | 382 | 1404 |
| Powell | 7750 | 3 | 2556 | 4154 | 566 | 2547 |
| Prairie | 54950 | 23 | - | - | - | - |
| Ravalli | 10150 | 4 | 5766 | 9370 | 487 | 2192 |
| Richland | 188650 | 80 | - | - | - | - |
| Roosevelt | 389400 | 165 | - | - | - | - |
| Rosebud ^a | 763 | 16 | 29 | 33 | 101 | 371 |
| Sanders | 7600 | 3 | 3929 | 6385 | 91 | 410 |
| Sheridan | 323300 | 137 | - | - | - | - |
| Silverbow ^a | 16 | neg | 863 | 1187 | 68 | 275 |
| Stillwater ^a | 1690 | 36 | 57 | 64 | 180 | 662 |
| Sweetgrass ^a | 435 | 9 | 251 | 282 | 142 | 552 |
| Teton | 252600 | 107 | 586 | 659 | 6 | 22 |
| Toole | 301100 | 128 | - | - | - | - |
| Treasure ^a | 158 | 3 | - | - | - | - |
| Valley | 363250 | 154 | - | - | - | - |
| Wheatland | 25000 | 11 | 164 | 184 | 2 | 7 |
| Wibaux | 60650 | 26 | - | - | - | - |
| Yellowstone ^a | 2414 | 51 | - | - | - | - |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

Table 9. 1974 Area Source Highway Mobile
Source Emissions

| County | LDV 10 ³ VMT | LDT 10 ³ VMT | HDV 10 ³ VMT | HDD 10 ³ VMT | Total 10 ³ VMT |
|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|------------------------------|
| Beaverhead | 47344 | 15546 | 5229 | 2544 | 70662 |
| Bighorn ^a | 86397 | 28369 | 9542 | 4642 | 128951 |
| Blaine | 41402 | 13595 | 4573 | 2225 | 61794 |
| Broadwater | 34648 | 11377 | 3827 | 1862 | 51714 |
| Carbon ^a | 55783 | 18317 | 6161 | 2997 | 83258 |
| Carter ^a | 13478 | 4426 | 1489 | 724 | 20116 |
| Cascade | 315848 | 103711 | 34885 | 16971 | 471415 |
| Chouteau | 42452 | 13939 | 4689 | 2281 | 63361 |
| Custer ^a | 64900 | 21311 | 7168 | 3487 | 96866 |
| Daniels | 12983 | 4263 | 1434 | 698 | 19378 |
| Dawson | 65968 | 21661 | 7286 | 3545 | 98459 |
| Deerlodge ^a | 62397 | 20489 | 6892 | 3353 | 93130 |
| Fallon ^a | 21884 | 7186 | 2417 | 1176 | 32662 |
| Fergus | 61352 | 20145 | 6776 | 3297 | 91570 |
| Flathead ^a | 217826 | 71525 | 24058 | 11706 | 325114 |
| Gallatin | 176631 | 57998 | 19509 | 9491 | 263629 |
| Garfield | 14142 | 4644 | 1562 | 760 | 21108 |
| Glacier | 75143 | 24674 | 8299 | 4038 | 112153 |
| Golden Valley | 11008 | 3615 | 1216 | 591 | 16430 |
| Granite | 35881 | 11782 | 3963 | 1928 | 53554 |
| Hill | 80318 | 26373 | 8871 | 4316 | 119877 |
| Jefferson | 69577 | 22846 | 7685 | 3738 | 103847 |
| Judith Basin | 25632 | 8416 | 2831 | 1377 | 38257 |
| Lake ^a | 96515 | 31691 | 10660 | 5186 | 144052 |
| Lewis & Clark ^a | 156161 | 51277 | 17248 | 8391 | 233076 |
| Liberty | 12417 | 4077 | 1371 | 667 | 18533 |
| Lincoln | 95176 | 31252 | 10512 | 5114 | 142054 |
| McCone | 20161 | 6620 | 2227 | 1083 | 30091 |
| Madison | 38520 | 12648 | 4254 | 2070 | 57493 |
| Meagher | 15888 | 5217 | 1755 | 854 | 23713 |
| Mineral | 56001 | 18388 | 6185 | 3009 | 83584 |
| Missoula ^a | 259610 | 85245 | 28673 | 13949 | 387477 |
| Musselshell | 13860 | 4551 | 1531 | 745 | 20686 |
| Park | 73057 | 23989 | 8069 | 3925 | 109041 |
| Petroleum | 5859 | 1924 | 647 | 315 | 8745 |
| Phillips | 34411 | 11299 | 3801 | 1849 | 51359 |
| Pondera | 40090 | 13164 | 4428 | 2154 | 59836 |
| Powder River ^a | 20755 | 6815 | 2292 | 1115 | 30978 |
| Powell | 61219 | 20102 | 6761 | 3289 | 91371 |
| Prairie | 18010 | 5914 | 1989 | 970 | 26881 |
| Ravalli | 75306 | 24727 | 8317 | 4046 | 112397 |
| Richland | 48105 | 15796 | 5313 | 2585 | 71798 |
| Roosevelt | 56157 | 18440 | 6202 | 3017 | 83816 |
| Rosebud ^a | 57343 | 18829 | 6333 | 3081 | 85587 |
| Sanders | 44467 | 14601 | 4911 | 2389 | 66368 |
| Sheridan | 26314 | 8641 | 2906 | 1414 | 39275 |
| Silverbow ^a | 148117 | 48635 | 16359 | 7959 | 221070 |
| Stillwater ^a | 48615 | 15963 | 5369 | 2612 | 72559 |
| Sweetgrass ^a | 39960 | 13121 | 4414 | 2147 | 59642 |
| Teton | 40657 | 13350 | 4490 | 2185 | 60682 |
| Toole | 39531 | 12980 | 4366 | 2124 | 59001 |
| Treasure ^a | 16053 | 5271 | 1773 | 863 | 23959 |
| Valley | 65702 | 21574 | 7257 | 3530 | 98063 |
| Wheatland | 17856 | 5863 | 1972 | 959 | 26651 |
| Wibaux | 13724 | 4506 | 1516 | 738 | 20484 |
| Yellowstone ^a | 334813 | 109939 | 36979 | 17989 | 499721 |

^a counties included in Montana AQMA Area Source Emission
Inventory, December 1975.

Table 9 (continued). 1974 Area Source Highway
Mobile Source Emissions

| County | LDV emissions, ton/yr | | LDT emissions, ton/yr | | HDV emissions, ton/yr | | HDD emissions, ton/yr | | Total emissions, ton/yr | |
|----------------------------|-----------------------------|-----------------|-----------------------------|-----------------|-----------------------------|-----------------|-----------------------------|-----------------|-------------------------------|-----------------|
| | Part | SO ₂ | Part | SO ₂ | Part | SO ₂ | Part | SO ₂ | Part | SO ₂ |
| Beaverhead | 29.2 | 6.8 | 9.6 | 3.1 | 7.1 | 2.1 | 5.1 | 7.9 | 51.0 | 19.9 |
| Bighorn ^a | 53.3 | 12.4 | 17.5 | 5.6 | 13.0 | 3.8 | 9.4 | 14.3 | 93.2 | 36.1 |
| Blaine | 25.6 | 5.9 | 8.4 | 2.7 | 6.2 | 1.8 | 4.5 | 6.9 | 44.7 | 17.3 |
| Broadwater | 21.4 | 5.0 | 7.0 | 2.2 | 5.2 | 1.5 | 3.8 | 5.7 | 37.4 | 14.4 |
| Carbon ^a | 34.4 | 8.0 | 11.3 | 3.6 | 8.4 | 2.4 | 6.0 | 9.2 | 60.1 | 23.2 |
| Carter ^a | 8.3 | 1.9 | 2.7 | 0.9 | 2.0 | 0.6 | 1.5 | 2.2 | 14.5 | 5.6 |
| Cascade | 195.0 | 45.3 | 64.0 | 20.6 | 47.7 | 13.8 | 34.2 | 52.4 | 340.9 | 132.1 |
| Chouteau | 26.2 | 6.1 | 8.6 | 2.8 | 6.4 | 1.9 | 4.6 | 7.0 | 45.8 | 17.8 |
| Custer ^a | 40.1 | 9.3 | 13.2 | 4.2 | 9.8 | 2.8 | 7.0 | 10.8 | 70.1 | 27.1 |
| Daniels | 8.0 | 1.9 | 2.6 | 0.8 | 2.0 | 0.6 | 1.4 | 2.2 | 14.0 | 5.5 |
| Dawson | 40.7 | 9.4 | 13.4 | 4.3 | 10.0 | 2.9 | 7.2 | 10.9 | 71.3 | 27.5 |
| Deerlodge ^a | 38.5 | 8.9 | 12.6 | 4.1 | 9.4 | 2.7 | 6.8 | 10.3 | 67.3 | 26.0 |
| Fallon ^a | 13.5 | 3.1 | 4.4 | 1.4 | 3.3 | 1.0 | 2.4 | 3.6 | 23.6 | 9.1 |
| Fergus | 37.9 | 8.8 | 12.4 | 4.0 | 9.3 | 2.7 | 6.7 | 10.1 | 66.3 | 25.6 |
| Flathead ^a | 134.5 | 31.2 | 44.2 | 14.2 | 32.9 | 9.5 | 23.6 | 36.1 | 235.2 | 91.0 |
| Gallatin | 109.0 | 25.3 | 35.8 | 11.5 | 26.7 | 7.7 | 19.1 | 29.3 | 190.6 | 73.8 |
| Garfield | 8.7 | 2.0 | 2.9 | 0.9 | 2.1 | 0.6 | 1.5 | 2.3 | 15.2 | 5.8 |
| Glacier | 46.4 | 10.8 | 15.2 | 4.9 | 11.3 | 3.3 | 8.1 | 12.5 | 81.0 | 31.5 |
| Golden Valley | 6.8 | 1.6 | 2.2 | 0.7 | 1.7 | 0.5 | 1.2 | 1.8 | 11.9 | 4.6 |
| Granite | 22.1 | 5.1 | 7.3 | 2.3 | 5.4 | 1.6 | 3.9 | 6.0 | 38.7 | 15.0 |
| Hill | 49.6 | 11.5 | 16.3 | 5.2 | 12.1 | 3.5 | 8.7 | 13.3 | 86.7 | 33.5 |
| Jefferson | 42.9 | 10.0 | 14.1 | 4.5 | 10.5 | 3.0 | 7.5 | 11.5 | 75.0 | 29.0 |
| Judith Basin | 15.8 | 3.7 | 5.2 | 1.7 | 3.9 | 1.1 | 2.8 | 4.2 | 27.7 | 10.7 |
| Lake ^a | 59.6 | 13.8 | 19.6 | 6.3 | 14.6 | 4.2 | 10.5 | 16.0 | 104.3 | 40.3 |
| Lewis & Clark ^a | 96.4 | 22.4 | 31.6 | 10.2 | 23.6 | 6.8 | 16.9 | 25.9 | 168.5 | 65.7 |
| Liberty | 7.7 | 1.8 | 2.5 | 0.8 | 1.9 | 0.5 | 1.3 | 2.0 | 13.4 | 5.1 |
| Lincoln | 58.8 | 13.6 | 19.3 | 6.2 | 14.4 | 4.2 | 10.3 | 15.8 | 102.8 | 39.8 |
| McCone | 12.4 | 2.9 | 4.1 | 1.3 | 3.0 | 0.9 | 2.2 | 3.3 | 21.7 | 8.4 |
| Madison | 23.8 | 5.5 | 7.8 | 2.5 | 5.8 | 1.7 | 4.2 | 6.4 | 41.6 | 16.1 |
| Meagher | 9.8 | 2.3 | 3.2 | 1.0 | 2.4 | 0.7 | 1.7 | 2.6 | 17.1 | 6.6 |
| Mineral | 34.6 | 8.0 | 11.4 | 3.6 | 8.4 | 2.4 | 6.1 | 9.3 | 60.5 | 23.3 |
| Missoula ^a | 160.2 | 37.2 | 52.6 | 16.9 | 39.2 | 11.4 | 28.1 | 43.0 | 280.1 | 108.5 |
| Musselshell | 8.6 | 2.0 | 2.8 | 0.9 | 2.1 | 0.6 | 1.5 | 2.3 | 15.0 | 5.8 |
| Park | 45.1 | 10.5 | 14.8 | 4.8 | 11.0 | 3.2 | 7.9 | 12.1 | 78.8 | 30.6 |
| Petroleum | 3.6 | 0.8 | 1.2 | 0.4 | 0.9 | 0.2 | 0.6 | 1.0 | 6.3 | 2.4 |
| Phillips | 21.2 | 4.9 | 7.0 | 2.2 | 5.2 | 1.5 | 3.7 | 5.7 | 37.1 | 14.3 |
| Pondera | 24.7 | 5.7 | 8.1 | 2.6 | 6.0 | 1.8 | 4.3 | 6.6 | 43.1 | 16.7 |
| Powder River ^a | 12.8 | 3.0 | 4.2 | 1.4 | 3.1 | 0.9 | 2.2 | 3.4 | 22.3 | 8.7 |
| Powell | 37.8 | 8.8 | 12.4 | 4.0 | 9.2 | 2.7 | 6.6 | 10.2 | 66.0 | 25.7 |
| Prairie | 11.1 | 2.6 | 3.6 | 1.2 | 2.7 | 0.8 | 2.0 | 3.0 | 19.4 | 7.6 |
| Ravalli | 46.5 | 10.8 | 15.3 | 4.9 | 11.4 | 3.3 | 8.2 | 12.5 | 81.4 | 31.5 |
| Richland | 29.7 | 6.9 | 9.8 | 3.1 | 7.3 | 2.1 | 5.2 | 8.0 | 52.0 | 20.1 |
| Roosevelt | 34.7 | 8.0 | 11.4 | 3.6 | 8.5 | 2.5 | 6.1 | 9.3 | 60.7 | 23.4 |
| Rosebud ^a | 35.4 | 8.2 | 11.6 | 3.7 | 8.6 | 2.5 | 6.2 | 9.5 | 61.8 | 23.9 |
| Sanders | 27.4 | 6.4 | 9.0 | 2.9 | 6.7 | 1.9 | 4.8 | 7.4 | 47.9 | 18.6 |
| Sheridan | 16.2 | 3.8 | 5.3 | 1.7 | 4.0 | 1.2 | 2.9 | 4.4 | 28.4 | 11.1 |
| Silverbow ^a | 91.4 | 21.2 | 30.0 | 9.6 | 22.4 | 6.5 | 16.0 | 24.6 | 159.8 | 61.9 |
| Stillwater ^a | 30.0 | 7.0 | 9.9 | 3.2 | 7.3 | 2.1 | 5.3 | 8.1 | 52.5 | 20.4 |
| Sweetgrass ^a | 24.7 | 5.7 | 8.1 | 2.6 | 6.0 | 1.8 | 4.3 | 6.6 | 43.1 | 16.7 |
| Teton | 25.1 | 5.8 | 8.2 | 2.6 | 6.1 | 1.8 | 4.4 | 6.7 | 43.8 | 16.9 |
| Toole | 24.4 | 5.7 | 8.0 | 2.6 | 6.0 | 1.7 | 4.3 | 6.6 | 42.7 | 16.6 |
| Treasure ^a | 9.9 | 2.3 | 3.2 | 1.0 | 2.4 | 0.7 | 1.7 | 2.7 | 17.2 | 6.7 |
| Valley | 40.6 | 9.4 | 13.3 | 4.3 | 9.9 | 2.9 | 7.1 | 10.9 | 70.9 | 27.5 |
| Wheatland | 11.0 | 2.6 | 3.6 | 1.2 | 2.7 | 0.8 | 1.9 | 3.0 | 17.7 | 7.6 |
| Wibaux | 8.5 | 2.0 | 2.8 | 0.9 | 2.1 | 0.6 | 1.5 | 2.3 | 14.9 | 5.8 |
| Yellowstone ^a | 206.7 | 48.0 | 67.9 | 21.8 | 50.5 | 14.7 | 36.3 | 55.5 | 361.4 | 140.0 |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

Table 10. 1974 Area Source Off-Highway Gasoline Consumption

| County | 1969 Tractors | 1974 Tractors | 60% 1974 Gasoline | 1974 Gasoline consumption, 10 ³ gal/yr | |
|----------------------------|------------------|------------------|-------------------------|--|-------|
| | | | | Tractor | Other |
| Beaverhead | 1263 | 1351 | 811 | 811 | 108 |
| Bighorn ^a | 1445 | 1546 | 928 | 928 | 136 |
| Blaine | 1336 | 1430 | 858 | 858 | 88 |
| Broadwater | 585 | 626 | 376 | 376 | 35 |
| Carbon ^a | 1605 | 1717 | 1030 | 1030 | 103 |
| Carter ^a | 895 | 958 | 575 | 575 | 25 |
| Cascade | 1876 | 2007 | 1204 | 1204 | 1096 |
| Chouteau | 2263 | 2421 | 1453 | 1453 | 83 |
| Custer ^a | 930 | 995 | 597 | 597 | 160 |
| Daniels | 960 | 1027 | 616 | 616 | 42 |
| Dawson | 1360 | 1455 | 873 | 873 | 142 |
| Deerlodge ^a | 167 | 179 | 107 | 107 | 196 |
| Fallon ^a | 759 | 812 | 487 | 487 | 51 |
| Fergus | 2318 | 2480 | 1488 | 1488 | 168 |
| Flathead ^a | 1402 | 1500 | 900 | 900 | 554 |
| Gallatin | 1751 | 1874 | 1124 | 1124 | 468 |
| Garfield | 631 | 675 | 405 | 405 | 21 |
| Glacier | 674 | 721 | 433 | 433 | 148 |
| Golden Valley | 340 | 364 | 218 | 218 | 12 |
| Granite | 481 | 515 | 309 | 309 | 35 |
| Hill | 1648 | 1763 | 1058 | 1058 | 230 |
| Jefferson | 434 | 464 | 278 | 278 | 90 |
| Judith Basin | 1064 | 1138 | 683 | 683 | 35 |
| Lake ^a | 1790 | 1915 | 1149 | 1149 | 217 |
| Lewis & Clark ^a | 788 | 843 | 506 | 506 | 648 |
| Liberty | 732 | 783 | 470 | 470 | 30 |
| Lincoln | 317 | 339 | 203 | 203 | 221 |
| McCone | 1265 | 1354 | 812 | 812 | 35 |
| Madison | 1098 | 1175 | 705 | 705 | 77 |
| Meagher | 389 | 416 | 250 | 250 | 27 |
| Mineral | 73 | 78 | 47 | 47 | 47 |
| Missoula ^a | 566 | 606 | 364 | 364 | 828 |
| Musselshell | 525 | 562 | 337 | 337 | 55 |
| Park | 995 | 1065 | 639 | 639 | 155 |
| Petroleum | 290 | 310 | 186 | 186 | 8 |
| Phillips | 1329 | 1422 | 853 | 853 | 72 |
| Pondera | 1313 | 1405 | 843 | 843 | 87 |
| Powder River ^a | 931 | 996 | 598 | 598 | 29 |
| Powell | 590 | 631 | 379 | 379 | 96 |
| Prairie | 559 | 598 | 359 | 359 | 25 |
| Ravalli | 1406 | 1504 | 902 | 902 | 233 |
| Richland | 1996 | 2136 | 1282 | 1282 | 129 |
| Roosevelt | 1592 | 1703 | 1022 | 1022 | 136 |
| Rosebud ^a | 972 | 1040 | 624 | 624 | 100 |
| Sanders | 726 | 777 | 466 | 466 | 101 |
| Sheridan | 1743 | 1865 | 1119 | 1119 | 69 |
| Silverbow ^a | 212 | 227 | 136 | 136 | 562 |
| Stillwater ^a | 1080 | 1156 | 694 | 694 | 68 |
| Sweetgrass ^a | 737 | 789 | 473 | 473 | 40 |
| Teton | 1707 | 1826 | 1096 | 1096 | 83 |
| Toole | 1023 | 1095 | 657 | 657 | 70 |
| Treasure ^a | 417 | 446 | 268 | 268 | 16 |
| Valley | 1744 | 1866 | 1120 | 1120 | 169 |
| Wheatland | 465 | 498 | 299 | 299 | 32 |
| Wibaux | 538 | 576 | 346 | 346 | 18 |
| Yellowstone ^a | 2634 | 2818 | 1691 | 1691 | 1226 |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

Table 11. 1974 Area Source Off-Highway Diesel Consumption

| County | Non-bldg employees | 1974 Diesel consumption, 10 ³ gal/yr | | | |
|----------------------------|-----------------------|--|----------|--------------|-------|
| | | 1974 Diesel tractors | Tractors | Construction | Other |
| Beaverhead | | 473 | 473 | | 61 |
| Bighorn ^a | | 541 | 541 | | 78 |
| Blaine | | 500 | 500 | | 50 |
| Broadwater | | 219 | 219 | | 20 |
| Carbon ^a | | 601 | 601 | | 58 |
| Carter ^a | | 335 | 335 | | 14 |
| Cascade | 422 | 702 | 702 | 2110 | 624 |
| Chouteau | | 847 | 847 | | 47 |
| Custer ^a | 65 | 348 | 348 | 325 | 91 |
| Daniels | | 359 | 359 | | 24 |
| Dawson | 73 | 509 | 509 | 365 | 81 |
| Deerlodge ^a | | 63 | 63 | | 112 |
| Fallon ^a | | 284 | 284 | | 29 |
| Fergus | 24 | 868 | 868 | 120 | 95 |
| Flathead ^a | 218 | 525 | 525 | 1090 | 315 |
| Gallatin | 326 | 656 | 656 | 1630 | 266 |
| Garfield | | 236 | 236 | | 12 |
| Glacier | | 252 | 252 | | 84 |
| Golden Valley | | 127 | 127 | | 7 |
| Granite | | 180 | 180 | | 20 |
| Hill | 99 | 617 | 617 | 495 | 131 |
| Jefferson | | 162 | 162 | | 51 |
| Judith Basin | | 398 | 398 | | 20 |
| Lake ^a | | 670 | 670 | | 124 |
| Lewis & Clark ^a | 460 | 295 | 295 | 2300 | 266 |
| Liberty | | 274 | 274 | | 17 |
| Lincoln | 110 | 119 | 119 | 550 | 126 |
| McCone | | 474 | 474 | | 20 |
| Madison | | 411 | 411 | | 44 |
| Meagher | | 146 | 146 | | 16 |
| Mineral | | 27 | 27 | | 27 |
| Missoula ^a | 417 | 212 | 212 | 2085 | 471 |
| Musselshell | | 197 | 197 | | 31 |
| Park | 105 | 373 | 373 | 525 | 88 |
| Petroleum | | 108 | 108 | | 4 |
| Phillips | | 498 | 498 | | 41 |
| Pondera | | 492 | 492 | | 50 |
| Powder River ^a | | 349 | 349 | | 16 |
| Powell | | 221 | 221 | | 55 |
| Prairie | | 209 | 209 | | 14 |
| Ravalli | 57 | 526 | 526 | 285 | 32 |
| Richland | 25 | 748 | 748 | 125 | 73 |
| Roosevelt | | 596 | 596 | | 78 |
| Rosebud ^a | | 364 | 364 | | 57 |
| Sanders | | 272 | 272 | | 58 |
| Sheridan | | 653 | 653 | | 39 |
| Silverbow ^a | 248 | 79 | 79 | 1240 | 320 |
| Stillwater ^a | | 405 | 405 | | 38 |
| Sweetgrass ^a | | 276 | 276 | | 23 |
| Teton | | 639 | 639 | | 47 |
| Toole | | 383 | 383 | | 40 |
| Treasure ^a | | 156 | 156 | | 9 |
| Valley | | 653 | 653 | | 96 |
| Wheatland | | 174 | 174 | | 18 |
| Wibaux | | 202 | 202 | | 10 |
| Yellowstone ^a | 849 | 986 | 986 | 4245 | 698 |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

Table 12. 1974 Area Source Off-Highway Emissions

| County | Gasoline | | Diesel | | 1974 Emissions, ton/yr | |
|----------------------------|----------|-----------------|--------|-----------------|------------------------------|-----------------|
| | Part | SO ₂ | Part | SO ₂ | Part | SO ₂ |
| Beaverhead | 3.5 | 2.5 | 12.0 | 8.5 | 15.5 | 11.0 |
| Bighorn ^a | 4.1 | 2.9 | 14.0 | 9.7 | 18.1 | 12.6 |
| Blaine | 3.7 | 2.5 | 12.4 | 8.7 | 16.1 | 11.2 |
| Broadwater | 1.6 | 1.1 | 5.4 | 3.7 | 7.0 | 4.8 |
| Carbon ^a | 4.4 | 3.0 | 14.9 | 10.4 | 19.3 | 13.4 |
| Carter ^a | 2.4 | 1.6 | 8.0 | 5.4 | 10.4 | 7.0 |
| Cascade | 8.2 | 6.1 | 56.0 | 54.7 | 64.2 | 60.8 |
| Chouteau | 6.1 | 4.1 | 20.4 | 14.0 | 26.5 | 18.1 |
| Custer ^a | 2.8 | 2.0 | 14.0 | 12.1 | 16.8 | 14.1 |
| Daniels | 2.6 | 1.7 | 8.7 | 6.0 | 11.3 | 7.7 |
| Dawson | 3.9 | 2.7 | 18.0 | 15.0 | 21.9 | 17.7 |
| Deerlodge ^a | 1.0 | 0.8 | 3.6 | 2.9 | 4.6 | 3.7 |
| Fallon ^a | 2.1 | 1.4 | 7.1 | 4.9 | 9.2 | 6.3 |
| Fergus | 6.5 | 4.4 | 23.4 | 17.1 | 29.9 | 21.5 |
| Flathead ^a | 5.3 | 3.8 | 32.5 | 30.7 | 37.8 | 34.5 |
| Gallatin | 6.0 | 4.2 | 41.7 | 40.2 | 47.7 | 44.4 |
| Garfield | 1.7 | 1.2 | 5.6 | 3.9 | 7.3 | 5.1 |
| Glacier | 2.2 | 1.5 | 7.5 | 5.4 | 9.7 | 6.9 |
| Golden Valley | 0.9 | 0.6 | 3.0 | 2.1 | 3.9 | 2.7 |
| Granite | 1.3 | 0.9 | 4.5 | 3.1 | 5.8 | 4.0 |
| Hill | 4.9 | 3.4 | 23.1 | 19.6 | 28.0 | 23.0 |
| Jefferson | 1.4 | 0.9 | 4.7 | 3.4 | 6.1 | 4.3 |
| Judith Basin | 2.8 | 1.9 | 9.5 | 6.5 | 12.3 | 8.4 |
| Lake ^a | 5.3 | 3.7 | 17.8 | 12.6 | 23.1 | 16.3 |
| Lewis & Clark ^a | 4.0 | 3.0 | 42.1 | 45.1 | 46.1 | 48.1 |
| Liberty | 2.0 | 1.3 | 6.9 | 4.6 | 8.9 | 5.9 |
| Lincoln | 1.5 | 1.1 | 12.4 | 13.0 | 13.9 | 14.1 |
| McCone | 3.3 | 2.3 | 11.2 | 7.7 | 14.5 | 10.0 |
| Madison | 3.0 | 2.1 | 10.3 | 7.2 | 13.3 | 9.3 |
| Meagher | 1.1 | 0.8 | 3.6 | 2.6 | 4.7 | 3.4 |
| Mineral | 0.3 | 0.2 | 1.1 | 0.9 | 1.4 | 1.1 |
| Missoula ^a | 4.1 | 3.2 | 41.5 | 44.0 | 45.6 | 47.2 |
| Musselshell | 1.5 | 1.0 | 5.1 | 3.6 | 6.6 | 4.6 |
| Park | 3.1 | 2.1 | 17.2 | 15.5 | 20.3 | 17.6 |
| Petroleum | 0.7 | 0.5 | 2.6 | 1.8 | 3.3 | 2.3 |
| Phillips | 3.6 | 2.5 | 12.2 | 8.5 | 15.8 | 11.0 |
| Pondera | 3.7 | 2.4 | 12.2 | 8.6 | 15.9 | 11.0 |
| Powder River ^a | 2.5 | 1.7 | 8.3 | 5.7 | 10.8 | 7.4 |
| Powell | 1.8 | 1.3 | 6.1 | 4.4 | 7.9 | 4.7 |
| Prairie | 1.4 | 1.1 | 5.1 | 3.5 | 6.5 | 4.6 |
| Ravalli | 4.3 | 3.0 | 18.4 | 14.9 | 22.7 | 17.9 |
| Richland | 5.5 | 3.7 | 20.2 | 15.0 | 25.7 | 18.7 |
| Roosevelt | 4.5 | 3.1 | 15.2 | 10.6 | 19.7 | 13.7 |
| Rosebud ^a | 2.8 | 2.0 | 9.4 | 6.7 | 12.2 | 8.7 |
| Sanders | 2.2 | 1.5 | 7.4 | 5.2 | 9.6 | 6.7 |
| Sheridan | 4.7 | 3.2 | 15.7 | 10.9 | 20.4 | 14.1 |
| Silverbow ^a | 2.2 | 1.9 | 24.4 | 26.0 | 26.6 | 27.9 |
| Stillwater ^a | 3.0 | 2.0 | 10.1 | 7.0 | 13.1 | 9.0 |
| Sweetgrass ^a | 2.0 | 1.4 | 6.8 | 4.7 | 8.8 | 6.1 |
| Teton | 4.7 | 3.1 | 15.6 | 10.8 | 20.3 | 13.9 |
| Toole | 2.8 | 1.9 | 9.6 | 6.7 | 12.4 | 8.6 |
| Treasure ^a | 1.1 | 0.7 | 3.8 | 2.6 | 4.9 | 3.3 |
| Valley | 5.0 | 3.4 | 16.8 | 11.9 | 21.8 | 15.3 |
| Wheatland | 1.3 | 0.9 | 4.4 | 3.0 | 5.7 | 3.9 |
| Wibaux | 1.5 | 0.9 | 4.8 | 3.4 | 6.3 | 4.3 |
| Yellowstone ^a | 10.6 | 7.7 | 91.9 | 93.7 | 102.5 | 101.4 |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

Table 13. 1974 Area Source Railroad Emissions

| County | Total consumption 10 ³ gal/yr | 1974 Emissions, ton/yr | |
|----------------------------|--|------------------------------|-----------------|
| | | Part | SO ₂ |
| Beaverhead | 353 | 4 | 10 |
| Bighorn ^a | 1286 | 16 | 37 |
| Blaine | 1897 | 24 | 54 |
| Broadwater | 753 | 9 | 21 |
| Carbon ^a | 460 | 6 | 13 |
| Carter ^a | - | - | - |
| Cascade | 425 | 5 | 12 |
| Chouteau | 237 | 3 | 7 |
| Custer ^a | 3705 | 46 | 106 |
| Daniels | 21 | - | 1 |
| Dawson | 1788 | 22 | 51 |
| Deerlodge ^a | 371 | 5 | 11 |
| Fallon ^a | 374 | 5 | 11 |
| Fergus | 248 | 3 | 7 |
| Flathead ^a | 3585 | 45 | 102 |
| Gallatin | 880 | 11 | 25 |
| Garfield | - | - | - |
| Glacier | 2081 | 26 | 59 |
| Golden Valley | 328 | 4 | 9 |
| Granite | 780 | 10 | 22 |
| Hill | 1914 | 24 | 55 |
| Jefferson | 306 | 4 | 9 |
| Judith Basin | 183 | 2 | 5 |
| Lake ^a | 74 | 1 | 2 |
| Lewis & Clark ^a | 605 | 8 | 17 |
| Liberty | 850 | 11 | 24 |
| Lincoln | 1856 | 23 | 53 |
| McCone | 3 | - | - |
| Madison | 72 | 1 | 2 |
| Meagher | 94 | 1 | 3 |
| Mineral | 1690 | 21 | 48 |
| Missoula ^a | 1903 | 24 | 54 |
| Musselshell | 479 | 6 | 14 |
| Park | 1131 | 14 | 32 |
| Petroleum | - | - | - |
| Phillips | 1818 | 23 | 52 |
| Pondera | 129 | 2 | 4 |
| Powder River ^a | - | - | - |
| Powell | 945 | 12 | 27 |
| Prairie | 2119 | 26 | 60 |
| Ravalli | 4 | - | - |
| Richland | 59 | 1 | 2 |
| Roosevelt | 2949 | 37 | 84 |
| Rosebud ^a | 3081 | 39 | 88 |
| Sanders | 1577 | 20 | 45 |
| Sheridan | 54 | 1 | 2 |
| Silverbow ^a | 804 | 10 | 23 |
| Stillwater ^a | 675 | 8 | 19 |
| Sweetgrass ^a | 699 | 9 | 20 |
| Teton | 155 | 2 | 4 |
| Toole | 1384 | 17 | 39 |
| Treasure ^a | 493 | 6 | 14 |
| Valley | 2658 | 33 | 76 |
| Wheatland | 254 | 3 | 7 |
| Wibaux | 1945 | 24 | 55 |
| Yellowstone ^a | 1955 | 24 | 56 |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

Table 14. 1974 Area Source Aircraft Emissions

| County/Airport | LTO Cycles | | | | 1974 Aircraft emissions, ton/yr | |
|----------------------------|-------------|------------------|----------|----------|---------------------------------|-----------------|
| | Air carrier | General aviation | Air taxi | Military | Part | SO ₂ |
| Cascade | | | | | | |
| Great Falls | 6743 | 32160 | 532 | 5642 | 7.1 | 12.8 |
| Malmstrom AFB | - | 385 | - | 439 | 4.5 | 9.5 |
| Custer ^a | | | | | | |
| Miles City | 684 | 17100 | 250 | 50 | 1.0 | 0.4 |
| Dawson | | | | | | |
| Glendive | 641 | 12740 | 600 | 8 | 0.9 | 0.4 |
| Fergus | | | | | | |
| Lewistown | 642 | 19900 | 600 | 350 | 1.0 | 0.5 |
| Flathead ^a | | | | | | |
| Kalispell | 956 | 23280 | 550 | 170 | 0.7 | 1.2 |
| Gallatin | | | | | | |
| Bozeman | 2993 | 20200 | 150 | 200 | 2.4 | 3.5 |
| W. Yellowstone | 603 | 2550 | 250 | 10 | 0.4 | 0.6 |
| Hill | | | | | | |
| Havre | 588 | 12650 | 750 | 24 | 0.8 | 0.4 |
| Lewis & Clark ^a | | | | | | |
| Helena | 2351 | 16861 | 933 | 5052 | 2.2 | 4.0 |
| Missoula ^a | | | | | | |
| Missoula | 3114 | 36485 | 386 | 369 | 2.6 | 4.0 |
| Richland | | | | | | |
| Sidney | 649 | 10825 | 950 | - | 0.8 | 0.4 |
| Roosevelt | | | | | | |
| Wolf Point | 669 | 10670 | 850 | - | 0.9 | 0.4 |
| Silverbow ^a | | | | | | |
| Butte | 2856 | 17000 | 1825 | 150 | 1.7 | 3.8 |
| Valley | | | | | | |
| Glasgow | 705 | 20030 | 2000 | 100 | 1.1 | 0.5 |
| Glasgow AFB | - | 385 | - | 439 | 0.2 | 0.4 |
| Yellowstone ^a | | | | | | |
| Billings | 9891 | 44895 | 934 | 484 | 7.8 | 11.8 |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

Table 15. 1974 Area Source Unpaved Road Emissions

| County | Unimproved | | Graded & Drained | | Gravel | | 1974 Particulate emissions, ton/yr |
|----------------------------|-------------------------------|----------------|-------------------------------|----------------|-------------------------------|----------------|---|
| | Annual 10 ³ VMT | Emis ton/yr | Annual 10 ³ VMT | Emis ton/yr | Annual 10 ³ VMT | Emis ton/yr | |
| Beaverhead | 348 | 635 | 174 | 381 | .6759 | 17235 | 18251 |
| Bighorn ^a | 717 | 1194 | 299 | 597 | 13292 | 30970 | 32761 |
| Blaine | 671 | 1027 | 2347 | 4307 | 9753 | 20920 | 26254 |
| Broadwater | 515 | 940 | 909 | 1991 | 3968 | 10118 | 13049 |
| Carbon ^a | 242 | 403 | 553 | 1103 | 12006 | 29973 | 31479 |
| Carter ^a | 254 | 406 | 1682 | 3221 | 2228 | 4980 | 8607 |
| Cascade | 237 | 401 | 1760 | 3573 | 17394 | 41137 | 45111 |
| Chouteau | 394 | 666 | 3701 | 7513 | 9285 | 21959 | 30138 |
| Custer ^a | 76 | 122 | 459 | 879 | 7279 | 16269 | 17270 |
| Daniels | 33 | 52 | 768 | 1467 | 5739 | 12798 | 14317 |
| Dawson | 165 | 264 | 848 | 1624 | 9267 | 20712 | 22600 |
| Deerlodge ^a | 381 | 695 | 301 | 659 | 4008 | 10220 | 11574 |
| Fallona ^a | 165 | 264 | 831 | 1591 | 5817 | 13001 | 14856 |
| Fergus | 338 | 571 | 1401 | 2844 | 12996 | 30736 | 34151 |
| Flathead ^a | 1330 | 1895 | 81 | 139 | 32339 | 64516 | 66550 |
| Gallatin | 1552 | 2832 | 1102 | 2413 | 27989 | 71372 | 76617 |
| Garfield | 396 | 630 | 2899 | 5537 | 564 | 1258 | 7425 |
| Glacier | 381 | 543 | 1378 | 2356 | 9131 | 18216 | 21115 |
| Golden Valley | 47 | 78 | 199 | 397 | 1759 | 4098 | 4573 |
| Granite | 438 | 657 | 267 | 479 | 4654 | 9750 | 10886 |
| Hill | 694 | 1173 | 5917 | 12012 | 4702 | 11120 | 24305 |
| Jefferson | 914 | 1668 | 416 | 911 | 6888 | 17564 | 27031 |
| Judith Basin | 101 | 171 | 177 | 359 | 5246 | 12407 | 12937 |
| Lake ^a | 615 | 876 | 379 | 648 | 22329 | 44546 | 46070 |
| Lewis & Clark ^a | 943 | 1721 | 3811 | 8346 | 17791 | 45367 | 55434 |
| Liberty | 114 | 193 | 505 | 1025 | 1212 | 2866 | 4084 |
| Lincoln | 495 | 705 | 361 | 617 | 9601 | 19154 | 20476 |
| McCone | 448 | 712 | 1693 | 3234 | 3805 | 8485 | 12431 |
| Madison | 1216 | 2219 | 846 | 1853 | 7119 | 18153 | 22225 |
| Meagher | 334 | 564 | 755 | 1533 | 3423 | 8095 | 10192 |
| Mineral | 617 | 926 | 84 | 151 | 3309 | 6932 | 8009 |
| Missoula ^a | 1511 | 2267 | 919 | 1650 | 19976 | 41850 | 45767 |
| Musselshell | 371 | 618 | 273 | 545 | 6969 | 16238 | 17401 |
| Park | 328 | 599 | 190 | 416 | 9216 | 23501 | 24516 |
| Petroleum | 136 | 226 | 498 | 994 | 782 | 1822 | 3042 |
| Phillips | 285 | 453 | 1518 | 2899 | 8548 | 19062 | 22414 |
| Pondera | 96 | 162 | 1024 | 2079 | 10578 | 25017 | 27258 |
| Powder River ^a | 190 | 304 | 556 | 1065 | 5262 | 11761 | 13130 |
| Powell | 763 | 1144 | 827 | 1484 | 11654 | 24415 | 27043 |
| Prairie | 145 | 232 | 348 | 666 | 2954 | 6602 | 7500 |
| Ravalli | 2069 | 3104 | 18 | 32 | 18105 | 37930 | 41066 |
| Richland | 154 | 245 | 932 | 1780 | 8660 | 19312 | 21337 |
| Roosevelt | 226 | 359 | 1976 | 3774 | 17302 | 38583 | 42716 |
| Rosebud ^a | 608 | 973 | 1729 | 3311 | 8646 | 19324 | 23608 |
| Sanders | 763 | 1087 | 356 | 609 | 11554 | 23050 | 24746 |
| Sheridan | 196 | 312 | 1436 | 2743 | 10586 | 23607 | 26662 |
| Silverbow ^a | 425 | 776 | 2099 | 4597 | 3489 | 8897 | 14270 |
| Stillwater ^a | 217 | 361 | 1766 | 3523 | 6932 | 16152 | 20036 |
| Sweetgrass ^a | 116 | 193 | 304 | 606 | 5927 | 13810 | 14609 |
| Teton | 135 | 228 | 1225 | 2487 | 10575 | 25010 | 27725 |
| Toole | 214 | 362 | 5401 | 10964 | 6262 | 14810 | 26136 |
| Treasure ^a | 113 | 181 | 188 | 360 | 1413 | 3158 | 3699 |
| Valley | 433 | 688 | 1580 | 3018 | 13189 | 29411 | 33117 |
| Wheatland | 79 | 132 | 312 | 622 | 5004 | 11659 | 12413 |
| Wibaux | 44 | 70 | 379 | 726 | 2637 | 5894 | 6690 |
| Yellowstone ^a | 674 | 1122 | 2673 | 5333 | 16501 | 38447 | 44902 |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

Table 16. 1974 Area Source Wind Blown
Dust Emissions

| County | Emission factors, ton/acre/yr | | | |
|----------------------------|----------------------------------|-------------|----------|-------|
| | Corn | Sugar beets | Potatoes | Beans |
| Beaverhead | neg | neg | .033 | neg |
| Bighorn ^a | .068 | neg | neg | .072 |
| Blaine | .067 | .131 | neg | neg |
| Broadwater | .072 | .134 | .130 | neg |
| Carbon ^a | .068 | .119 | neg | .072 |
| Carter ^a | .101 | neg | neg | neg |
| Cascade | .142 | neg | .212 | neg |
| Chouteau | .090 | neg | neg | neg |
| Custer ^a | .119 | .176 | neg | .107 |
| Daniels | .040 | .088 | neg | neg |
| Dawson | .064 | .122 | .144 | .072 |
| Deerlodge ^a | neg | neg | .030 | neg |
| Fallon ^a | .142 | neg | neg | neg |
| Fergus | .074 | neg | neg | neg |
| Flathead ^a | .029 | neg | .061 | neg |
| Gallatin | .089 | neg | .154 | neg |
| Garfield | .066 | neg | neg | neg |
| Glacier | neg | neg | neg | neg |
| Golden Valley | .116 | neg | neg | neg |
| Granite | neg | neg | neg | neg |
| Hill | .074 | neg | neg | neg |
| Jefferson | neg | neg | .056 | neg |
| Judith Basin | neg | neg | neg | neg |
| Lake ^a | .014 | neg | .030 | neg |
| Lewis & Clark ^a | .055 | neg | neg | neg |
| Liberty | .055 | neg | neg | neg |
| Lincoln | neg | neg | neg | neg |
| McCone | .053 | .104 | neg | .061 |
| Madison | neg | neg | .036 | neg |
| Meagher | neg | neg | neg | neg |
| Mineral | neg | neg | neg | neg |
| Missoula ^a | .014 | neg | neg | neg |
| Musselshell | .117 | neg | neg | neg |
| Park | neg | neg | neg | neg |
| Petroleum | .068 | neg | neg | neg |
| Phillips | .055 | neg | neg | neg |
| Pondera | .116 | neg | neg | neg |
| Powder River ^a | .083 | neg | neg | neg |
| Powell | neg | neg | .056 | neg |
| Prairie | .081 | .140 | neg | .082 |
| Ravalli | .013 | .040 | .034 | neg |
| Richland | .055 | .111 | .103 | .073 |
| Roosevelt | .040 | neg | .078 | neg |
| Rosebud ^a | .101 | .156 | neg | .095 |
| Sanders | neg | neg | neg | neg |
| Sheridan | .040 | neg | neg | neg |
| Silverbow ^a | neg | neg | neg | neg |
| Stillwater ^a | .083 | .137 | neg | .083 |
| Sweetgrass ^a | neg | neg | neg | neg |
| Teton | .093 | neg | neg | neg |
| Toole | neg | neg | neg | neg |
| Treasure ^a | .101 | .156 | neg | .095 |
| Valley | .040 | neg | neg | neg |
| Wheatland | neg | neg | neg | neg |
| Wibaux | .093 | neg | neg | neg |
| Yellowstone ^a | .101 | .156 | neg | .095 |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

Table 16 (continued). Area Source Wind Blown
Dust Emissions

| County | Acres planted | | | | Particulate emissions, ton/yr |
|----------------------------|---------------|----------|-------------|-------|-------------------------------------|
| | Corn | Potatoes | Sugar beets | Beans | |
| Beaverhead | - | 455 | - | - | 15 |
| Bighorn ^a | 11150 | - | - | 1050 | 834 |
| Blaine | 2900 | - | 935 | - | 317 |
| Broadwater | 350 | 395 | 2040 | - | 350 |
| Carbon ^a | 2450 | - | 7070 | 1550 | 1120 |
| Carter ^a | 550 | - | - | - | 56 |
| Cascade | 1600 | 120 | - | - | 253 |
| Chouteau | 350 | - | - | - | 32 |
| Custer ^a | 7850 | - | 2395 | 100 | 1376 |
| Daniels | 100 | - | 100 | - | 12 |
| Dawson | 2900 | 150 | 3040 | 850 | 635 |
| Deerlodge ^a | - | 190 | - | - | 6 |
| Fallon ^a | 2250 | - | - | - | 320 |
| Fergus | 85950 | - | - | - | 6360 |
| Flathead ^a | 300 | 835 | - | - | 60 |
| Gallatin | 550 | 1030 | - | - | 208 |
| Garfield | 1150 | - | - | - | 76 |
| Glacier | - | - | - | - | - |
| Golden Valley | 550 | - | - | - | 64 |
| Granite | - | - | - | - | - |
| Hill | 200 | - | - | - | 15 |
| Jefferson | - | 160 | - | - | 9 |
| Judith Basin | - | - | - | - | - |
| Lake ^a | 700 | 2315 | - | - | 79 |
| Lewis & Clark ^a | 200 | - | - | - | 11 |
| Liberty | 100 | - | - | - | 6 |
| Lincoln | - | - | - | - | - |
| McCone | 300 | - | 100 | 100 | 32 |
| Madison | - | 120 | - | - | 4 |
| Meagher | - | - | - | - | - |
| Mineral | - | - | - | - | - |
| Missoula ^a | 500 | - | - | - | 7 |
| Musselshell | 800 | - | - | - | 94 |
| Park | - | - | - | - | - |
| Petroleum | 100 | - | - | - | 7 |
| Phillips | 1900 | - | - | - | 104 |
| Pondera | 100 | - | - | - | 12 |
| Powder River ^a | 300 | - | - | - | 25 |
| Powell | - | 315 | - | - | 18 |
| Prairie | 4150 | - | 2075 | 200 | 361 |
| Ravalli | 950 | 505 | 420 | - | 46 |
| Richland | 8850 | 150 | 11375 | 3900 | 2050 |
| Roosevelt | 1700 | 100 | - | - | 76 |
| Rosebud ^a | 5650 | - | 1285 | 150 | 785 |
| Sanders | - | - | - | - | - |
| Sheridan | 150 | - | - | - | 6 |
| Silverbow ^a | - | - | - | - | - |
| Stillwater ^a | 2950 | - | 960 | 100 | 385 |
| Sweetgrass ^a | - | - | - | - | - |
| Teton | 350 | - | - | - | 33 |
| Toole | - | - | - | - | - |
| Treasure ^a | 3850 | - | 3930 | 750 | 1073 |
| Valley | 3600 | - | - | - | 144 |
| Wheatland | - | - | - | - | - |
| Wibaux | 1200 | - | - | - | 112 |
| Yellowstone ^a | 11900 | - | 10225 | 1250 | 2916 |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

Table 17. 1974 Area Source Agricultural Operation Emissions

| County | 1974 Total acres planted | Percent silt | PE index | E, lb/acre | 3 x E, lb/acre | Particulate emissions, ton/yr |
|----------------------------|-----------------------------------|-----------------|-------------|---------------|-------------------|-------------------------------------|
| Beaverhead | 200155 | 45 | 47 | 0.71 | 2.13 | 170 |
| Bighorn ^a | 174650 | 37 | 43 | 0.70 | 2.10 | 118 |
| Blaine | 282035 | 45 | 42 | 0.89 | 2.67 | 302 |
| Broadwater | 84135 | 45 | 46 | 0.74 | 2.22 | 74 |
| Carbon ^a | 113570 | 37 | 43 | 0.70 | 2.10 | 76 |
| Carter ^a | 102400 | 37 | 44 | 0.67 | 2.01 | 66 |
| Cascade | 346970 | 45 | 46 | 0.74 | 2.22 | 230 |
| Chouteau | 1097270 | 45 | 42 | 0.89 | 2.67 | 1172 |
| Custer ^a | 73695 | 37 | 44 | 0.67 | 2.01 | 47 |
| Daniels | 259300 | 45 | 46 | 0.74 | 2.22 | 230 |
| Dawson | 228090 | 37 | 46 | 0.61 | 1.83 | 167 |
| Deerlodge ^a | 14390 | 45 | 59 | 0.45 | 1.35 | 8 |
| Fallon ^a | 129050 | 45 | 44 | 0.81 | 2.43 | 100 |
| Fergus | 424800 | 45 | 46 | 0.74 | 2.22 | 378 |
| Flathead ^a | 92985 | 30 | 59 | 0.30 | 0.90 | 26 |
| Gallatin | 231730 | 30 | 47 | 0.48 | 1.44 | 134 |
| Garfield | 110550 | 37 | 46 | 0.61 | 1.83 | 81 |
| Glacier | 226200 | 45 | 42 | 0.89 | 2.67 | 242 |
| Golden Valley | 54150 | 37 | 46 | 0.61 | 1.83 | 40 |
| Granite | 46750 | 30 | 59 | 0.30 | 0.90 | 17 |
| Hill | 618250 | 45 | 42 | 0.89 | 2.67 | 660 |
| Jefferson | 56260 | 45 | 47 | 0.71 | 2.13 | 48 |
| Judith Basin | 216550 | 45 | 46 | 0.74 | 2.22 | 192 |
| Lake ^a | 91315 | 45 | 59 | 0.45 | 1.35 | 39 |
| Lewis & Clark ^a | 73050 | 45 | 46 | 0.74 | 2.22 | 52 |
| Liberty | 291150 | 45 | 42 | 0.89 | 2.67 | 311 |
| Lincoln | 16600 | 37 | 59 | 0.37 | 1.11 | 7 |
| McCone | 260050 | 37 | 46 | 0.61 | 1.83 | 190 |
| Madison | 153370 | 45 | 47 | 0.71 | 2.13 | 130 |
| Meagher | 67650 | 30 | 46 | 0.48 | 1.44 | 39 |
| Mineral | 4700 | 45 | 59 | 0.45 | 1.35 | 2 |
| Missoula ^a | 32350 | 45 | 59 | 0.45 | 1.35 | 14 |
| Musselshell | 53850 | 37 | 46 | 0.61 | 1.83 | 39 |
| Park | 111450 | 45 | 43 | 0.85 | 2.55 | 114 |
| Petroleum | 45900 | 37 | 46 | 0.61 | 1.83 | 34 |
| Phillips | 293250 | 45 | 42 | 0.89 | 2.67 | 313 |
| Pondera | 329050 | 45 | 42 | 0.89 | 2.67 | 351 |
| Powder River ^a | 105550 | 37 | 44 | 0.67 | 2.01 | 68 |
| Powell | 84615 | 45 | 59 | 0.45 | 1.35 | 46 |
| Prairie | 88575 | 37 | 44 | 0.67 | 2.01 | 71 |
| Ravalli | 62125 | 45 | 59 | 0.45 | 1.35 | 34 |
| Richland | 275525 | 45 | 46 | 0.74 | 2.22 | 245 |
| Roosevelt | 451900 | 45 | 46 | 0.74 | 2.22 | 402 |
| Rosebud ^a | 82555 | 37 | 44 | 0.67 | 2.01 | 53 |
| Sanders | 55450 | 45 | 59 | 0.45 | 1.35 | 30 |
| Sheridan | 365550 | 45 | 46 | 0.74 | 2.22 | 325 |
| Silverbow ^a | 7800 | 45 | 47 | 0.71 | 2.13 | 6 |
| Stillwater ^a | 134010 | 37 | 43 | 0.70 | 2.10 | 90 |
| Sweetgrass ^a | 82550 | 45 | 43 | 0.85 | 2.55 | 67 |
| Teton | 368850 | 45 | 42 | 0.89 | 2.67 | 394 |
| Toole | 372300 | 45 | 42 | 0.89 | 2.67 | 398 |
| Treasure ^a | 29230 | 37 | 43 | 0.70 | 2.10 | 20 |
| Valley | 461000 | 45 | 46 | 0.74 | 2.22 | 410 |
| Wheatland | 100500 | 37 | 46 | 0.61 | 1.83 | 74 |
| Wibaux | 83000 | 45 | 44 | 0.81 | 2.43 | 81 |
| Yellowstone ^a | 172525 | 37 | 43 | 0.70 | 2.10 | 116 |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

Table 18. 1974 Area Source Highway Construction Emissions

| County | Lgth, mi | Wdth, ft | Acres | Months | E, t/ac/mo | 1974 Emissions, ton/yr |
|----------------------------|-------------|-------------|-------|--------|---------------|------------------------------|
| Bighorn ^a | 3.4 | 50 | 20.6 | 5 | .62 | 63.9 |
| Carbon ^a | 5.8 | 50 | 35.2 | 7 | .62 | 152.8 |
| Cascade | 18.3 | 150 | 332.7 | 3 | .54 | 539.0 |
| Chouteau | 12.1 | 50 | 73.3 | 6 | .65 | 285.9 |
| Custer ^a | 6.5 | 50 | 39.4 | 5 | .60 | 141.8 |
| Dawson | 1.5 | 50 | 9.1 | 4 | .54 | 19.7 |
| Fergus | 0.1 | 50 | 0.6 | 5 | .54 | 1.6 |
| Flathead ^a | 4.1 | 50 | 24.8 | 6 | .33 | 49.1 |
| Lewis & Clark ^a | 2.5 | 50 | 15.2 | 4 | .54 | 32.8 |
| Missoula ^a | 1.7 | 150 | 30.9 | 6 | .33 | 246.3 ^b |
| | 9.3 | 50 | 56.4 | 4 | | |
| Musselshell | 2.4 | 50 | 14.5 | 3 | .54 | 23.5 |
| Powder River ^a | 5.9 | 50 | 35.8 | 5 | .60 | 128.9 |
| Roosevelt | 7.8 | 50 | 47.3 | 7 | .54 | 178.8 |
| Sanders | 10.8 | 150 | 196.4 | 8 | .33 | 518.5 |
| Silverbow ^a | 7.9 | 150 | 143.6 | 7 | .52 | 1112.6 |
| | 7.8 | 150 | 141.8 | 8 | | |
| Sweetgrass ^a | 0.7 | 50 | 4.2 | 7 | .62 | 15.6 |
| Teton | 5.5 | 150 | 100.0 | 6 | .65 | 390.0 |
| Valley | 11.7 | 50 | 79.9 | 4 | .54 | 172.6 |
| Yellowstone ^a | 7.3 | 150 | 132.7 | 3 | .62 | 463.7 ^b |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

^b includes residential, commercial and public construction emissions calculated in reference 1.

Table 19. 1974 Area Source Aggregate Storage
Pile Emissions

| County | 1974 Aggregate stockpiled tons | Emission factors, lb/ton | 1974 Particulate emissions, ton/yr |
|----------------------------|---|--------------------------------|---|
| Beaverhead | 58800 | 1.49 | 43.8 |
| Bighorn ^a | 109200 | 1.78 | 97.2 |
| Blaine | 42000 | 1.87 | 39.3 |
| Broadwater | 25200 | 1.56 | 19.7 |
| Carbon ^a | 840000 | 1.78 | 74.8 |
| Carter ^a | 8400 | 1.70 | 7.1 |
| Cascade | 100800 | 1.56 | 78.6 |
| Chouteau | 42000 | 1.87 | 39.3 |
| Custer ^a | 58800 | 1.70 | 50.0 |
| Daniels | 25200 | 1.56 | 19.7 |
| Dawson | 84000 | 1.56 | 65.5 |
| Deerlodge ^a | 33600 | 0.95 | 16.0 |
| Fallon ^a | 58800 | 1.70 | 50.0 |
| Fergus | 159600 | 1.56 | 124.5 |
| Flathead ^a | 126000 | 0.95 | 59.8 |
| Gallatin | 117600 | 1.49 | 87.6 |
| Garfield | 33600 | 1.56 | 26.2 |
| Glacier | 92400 | 1.87 | 86.4 |
| Golden Valley | 67200 | 1.56 | 52.4 |
| Granite | 58800 | 0.95 | 27.9 |
| Hill | 33600 | 1.87 | 31.4 |
| Jefferson | 75600 | 1.49 | 56.3 |
| Judith Basin | 100800 | 1.56 | 78.6 |
| Lake ^a | 134400 | 0.95 | 63.8 |
| Lewis & Clark ^a | 109200 | 1.56 | 85.2 |
| Liberty | 8400 | 1.87 | 7.9 |
| Lincoln | 126000 | 0.95 | 60.0 |
| McCone | 75600 | 1.56 | 59.0 |
| Madison | 117600 | 1.49 | 87.6 |
| Meagher | 92400 | 1.56 | 72.1 |
| Mineral | 75600 | 0.95 | 35.9 |
| Missoula ^a | 117600 | 0.95 | 55.9 |
| Musselshell | 100800 | 1.56 | 78.6 |
| Park | 75600 | 1.78 | 67.3 |
| Petroleum | 75600 | 1.56 | 59.0 |
| Phillips | 126000 | 1.87 | 117.8 |
| Pondera | 16800 | 1.87 | 15.7 |
| Powder River ^a | 25200 | 1.70 | 21.4 |
| Powell | 58800 | 0.95 | 27.9 |
| Prairie | 25200 | 1.70 | 21.4 |
| Ravalli | 42000 | 0.95 | 20.0 |
| Richland | 67200 | 1.56 | 52.4 |
| Roosevelt | 75600 | 1.56 | 59.0 |
| Rosebud ^a | 109200 | 1.70 | 92.8 |
| Sanders | 67200 | 0.95 | 31.9 |
| Sheridan | 50400 | 1.56 | 39.3 |
| Silverbow ^a | 25200 | 1.49 | 18.8 |
| Stillwater ^a | 58800 | 1.78 | 52.3 |
| Sweetgrass ^a | 92400 | 1.78 | 82.2 |
| Teton | 8400 | 1.87 | 7.9 |
| Toole | 42000 | 1.87 | 39.3 |
| Treasure ^a | 33600 | 1.78 | 29.9 |
| Valley | 117600 | 1.56 | 91.7 |
| Wheatland | 92400 | 1.56 | 72.1 |
| Wibaux | 16800 | 1.70 | 14.3 |
| Yellowstone ^a | 220100 ^b | 1.78 | 195.9 |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

^b includes an estimated 102,500 tons of sand and gravel stockpiled by Yellowstone County Road Department.

Table 20. 1974 Area Source Paved
Roads Emissions

| County | Annual 10 ³ VMT | Emission factors, gm/VMT | 1974 Particulate emissions, ton/yr |
|----------------------------|-------------------------------|--------------------------------|---|
| Beaverhead | 63381 | 8.46 | 591 |
| Bighorn ^a | 114642 | 8.06 | 1019 |
| Blaine | 49023 | 7.73 | 418 |
| Broadwater | 46322 | 8.46 | 432 |
| Carbon ^a | 70457 | 8.06 | 626 |
| Carter ^a | 15953 | 7.89 | 139 |
| Cascade | 452024 | 8.13 | 4051 |
| Chouteau | 49981 | 8.13 | 448 |
| Custer ^a | 89052 | 7.89 | 775 |
| Daniels | 12838 | 7.88 | 112 |
| Dawson | 88179 | 7.89 | 767 |
| Deerlodge ^a | 88440 | 8.46 | 825 |
| Fallon ^a | 25850 | 7.89 | 225 |
| Fergus | 76835 | 8.13 | 689 |
| Flathead ^a | 291364 | 7.46 | 2396 |
| Gallatin | 232986 | 8.46 | 2173 |
| Garfield | 17249 | 7.88 | 150 |
| Glacier | 101263 | 7.46 | 833 |
| Golden Valley | 14425 | 8.06 | 128 |
| Granite | 48195 | 7.65 | 406 |
| Hill | 108564 | 8.13 | 973 |
| Jefferson | 95629 | 8.46 | 892 |
| Judith Basin | 32733 | 8.13 | 293 |
| Lake ^a | 120730 | 7.46 | 993 |
| Lewis & Clark ^a | 210531 | 8.46 | 1963 |
| Liberty | 16702 | 8.13 | 150 |
| Lincoln | 131597 | 7.46 | 1082 |
| McCone | 24145 | 7.88 | 210 |
| Madison | 48312 | 8.46 | 451 |
| Meagher | 19201 | 8.13 | 172 |
| Mineral | 79574 | 7.65 | 671 |
| Missoula ^a | 365071 | 7.65 | 3079 |
| Musselshell | 13073 | 8.06 | 116 |
| Park | 99307 | 8.46 | 926 |
| Petroleum | 7329 | 8.06 | 65 |
| Phillips | 41008 | 7.88 | 356 |
| Pondera | 48138 | 8.13 | 431 |
| Powder River ^a | 24970 | 7.89 | 217 |
| Powell | 78127 | 7.65 | 659 |
| Prairie | 23434 | 7.89 | 204 |
| Ravalli | 92205 | 7.65 | 778 |
| Richland | 62052 | 7.88 | 539 |
| Roosevelt | 64312 | 7.88 | 559 |
| Rosebud ^a | 74603 | 7.89 | 649 |
| Sanders | 53695 | 7.46 | 442 |
| Sheridan | 27057 | 7.88 | 235 |
| Silverbow ^a | 215057 | 8.46 | 2006 |
| Stillwater ^a | 63649 | 8.06 | 565 |
| Sweetgrass ^a | 53295 | 8.06 | 474 |
| Teton | 48747 | 8.13 | 437 |
| Toole | 47124 | 8.13 | 422 |
| Treasure ^a | 22245 | 7.89 | 193 |
| Valley | 82861 | 7.88 | 720 |
| Wheatland | 21256 | 8.06 | 189 |
| Wibaux | 17424 | 7.89 | 152 |
| Yellowstone ^a | 479874 | 8.06 | 4264 |

^a counties included in Montana AQMA Area Source Emission Inventory, December 1975.

REFERENCES

1. Montana AQMA Area Source Emission Inventory. PEDCo-Environmental Specialists, Inc., Cincinnati, Ohio. Prepared for U.S. Environmental Protection Agency. December 1975.
2. Guide for Compiling a Comprehensive Emission Inventory, Second Edition. U.S. Environmental Protection Agency, Research Triangle Park, North Carolina. Publication Number APTD-1135. December 1974.
3. The 1970 Census of Housing, Montana Detailed Housing Characteristics. U.S. Department of Commerce, Bureau of the Census, Washington, D.C. 1970.
4. Climatological Data, Volume 78, Number 7. U.S. Department of Commerce, NOAA, Asheville, North Carolina. July 1974.
5. Mineral Industry Surveys, Bituminous Coal and Lignite Distribution. U.S. Department of the Interior, Bureau of Mines, Washington, D.C. 1975.
6. Compilation of Air Pollutant Emission Factors, Supplements 1 through 5. U.S. Environmental Protection Agency, Research Triangle Park, North Carolina. Publication Number AP-42. April 1975.
7. Montana Current Population Reports, Federal-State Cooperative Program for Population Estimates. U.S. Department of Commerce, Bureau of the Census, Washington, D.C. Series P-26. 1974.
8. Mineral Industry Surveys, Sales of Fuel Oil and Kerosene in 1975. U.S. Department of the Interior, Bureau of Mines, Washington, D.C. 1976.
9. Montana County Business Patterns. U.S. Department of Commerce, Bureau of the Census, Washington, D.C. 1973.
10. National Emission Data System (NEDS), State of Montana Computer Listing. U.S. Environmental Protection Agency, Research Triangle Park, North Carolina. May 1975.
11. Data provided by Carl R. Anderson, Manager, Department of Environmental Protection. The Montana Power Company, Butte, Montana. September 1975, November 1976.

12. Data provided by A. J. Mayer, Manager, Gas Distribution. Montana-Dakota Utilities Company, Bismarck, North Dakota. August 1975, October 1976.
13. Brown's Directory of North American Gas Companies, 88th Edition. Statistics of Gas Distribution and Pipeline Companies in the United States and Canada for the Year 1973. Harcourt-Brace-Jovanovich, Duluth, Minnesota. 1974.
14. Mineral Industry Surveys, Sales of Liquefied Petroleum Gases and Ethane. U.S. Department of the Interior, Bureau of Mines, Washington, D.C. 1974.
15. Communication with Clark Nielson. Montana Air Quality Bureau, Helena, Montana. September 1975.
16. Communication with Carol Cameron. U.S. Forest Service, U.S. Department of Agriculture, Missoula, Montana. May and July 1975.
17. 1974 Fall Burning. U.S. Forest Service, U.S. Department of Agriculture, Region 1, Missoula, Montana. January 1975.
18. Communication with Ralph Hansen, Superintendent of Suppression Section. Montana Division of Forestry, Department of Natural Resources and Conservation, Missoula, Montana. October 1975.
19. Communication with Ron Hendickson, Assistant Regional Coordinator. U.S. Forest Service, U.S. Department of Agriculture, Missoula, Montana. October 1975.
20. Communication with Clark Nielson, Montana Air Quality Bureau, Helena, Montana. Data acquired from U.S. Forest Service, U.S. Department of Agriculture. May 1975.
21. Ward, D. E., C. K. McMahon, and R. W. Johansen. An Update on Particulate Emissions from Forest Fires, U.S. Department of Agriculture, Southeastern Forest Experiment Station, Southern Forest Fire Laboratory, Macon, Georgia. July 1976.
22. Montana Highway Functional Classification and Needs Study--1974 Update. Menasco-McGuinn Associates, Helena, Montana. June 1974.
23. Federal Aid Road Log, Montana. 1974.

24. Traffic Study for Billings and Missoula, Montana. Alan M. Voorhees and Associates, Denver, Colorado. June 1975. (Appendix B of Reference 1.)
25. Census of Agriculture, County Data. U.S. Department of Commerce, Bureau of the Census, Washington, D.C. 1969.
26. Airport Activity Statistics of Certificated Route Air Carriers, Twelve Months Ended June 30, 1975. U.S. Department of Transportation, Federal Aviation Administration, Civil Aeronautics Board. 1975.
27. Military Air Traffic Activity Report, U.S. Department of Transportation, Federal Aviation Administration. 1975.
28. Personal communication with Wayne Flaherty, Planning Director, Airport District Office. Federal Aviation Administration, Helena, Montana. November 1975, 1976.
29. Development of Emission Factors for Fugitive Dust Sources. U.S. Environmental Protection Agency, Research Triangle Park, North Carolina. Publication Number EPA-450/3-74-037. June 1974.
30. Montana Agricultural Statistics, County Statistics 1972 and 1973. Montana Department of Agriculture and Statistical Reporting Service and U.S. Department of Agriculture. Volume XV. December 1974.
31. Monthly Construction Reports--January through December, 1974. Montana Department of Highways, Construction Bureau, Helena, Montana. 1974.
32. Communication with Francis U. Toombs, Assistant Administrator, Maintenance Division. Montana Department of Highways. September 1975, October 1976.
33. Quantification of Dust Entrainment from Paved Roadways. Milwest Research Institute, Kansas City, Missouri. Prepared for U.S. Environmental Protection Agency, Research Triangle Park, North Carolina. 1976.
34. Roberts, J. W., A. T. Rossano, Jr., P. B. Bosserman, G. C. Hofer, and H. A. Watters. The Measurement, Cost and Control of Traffic Dust in Seattle's Duwamish Valley. Paper No. AP-72-5. (Presented at the APCA Pacific Northwest Section Annual Meeting. Eugene, Oregon. November 1972.)

